TOSHIBA

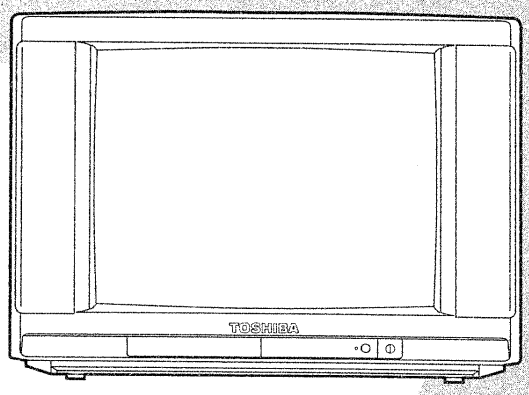
FILE NO. 060-9717

SERVICE MANUAL

COLOUR TELEVISION

S7ES Chassis

2975DE, 2975SH



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SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is Ⓐ kV at zero beam current (minimum brightness) under a Ⓒ V AC power source. The high voltage must not, under any circumstances, exceed Ⓑ kV.

   Refer to table-1 for high voltage Ⓐ, Ⓑ & AC voltage Ⓒ. (See SETTING & ADJUSTING DATA on page 19)

   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT

■ The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.

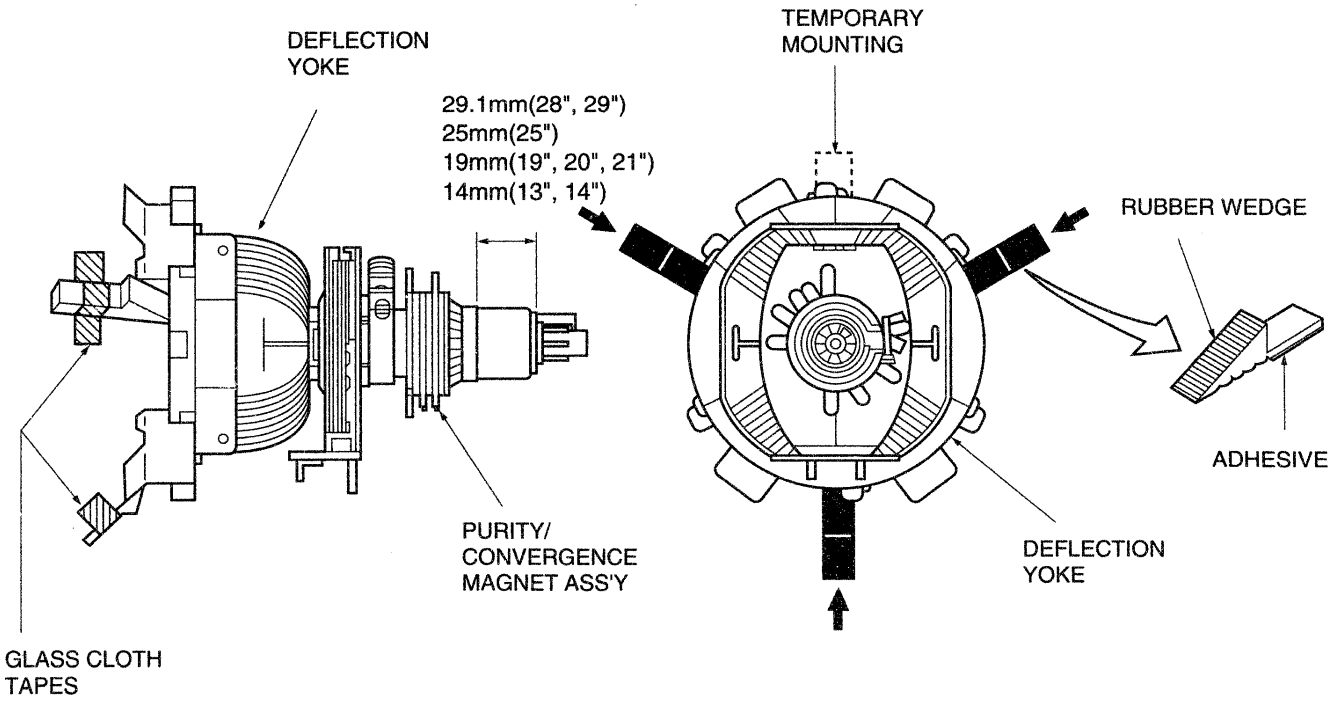


Figure 1.

CONVERGENCE ADJUSTMENTS

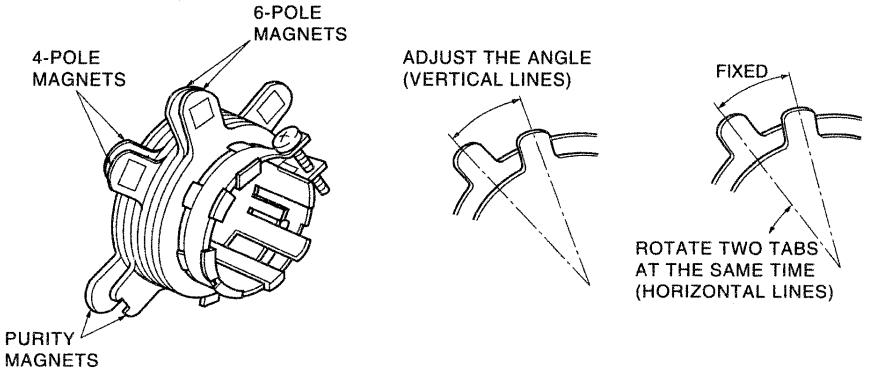
NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Use the cross-dot pattern from among the built-in test signals.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

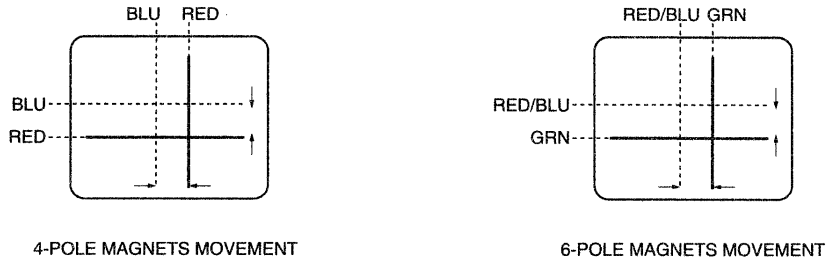
■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 1.



CONVERGENCE MAGNET ASSEMBLY — ADJUSTMENT OF MAGNETS

Figure 2.



4-POLE MAGNETS MOVEMENT — 6-POLE MAGNETS MOVEMENT

Center Convergence by Convergence Magnets

INCLINE THE YOKE UP (OR DOWN) — INCLINE THE YOKE RIGHT (OR LEFT)

Circumference Convergence by DEF Yoke

Figure 3. Dot Movement Pattern

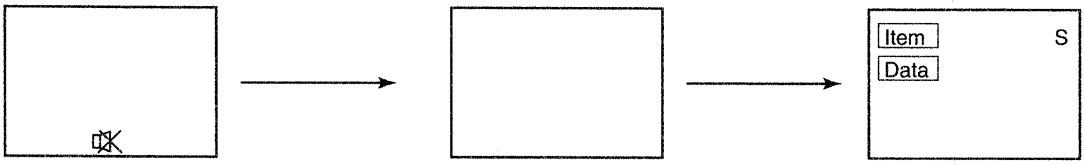
SERVICE MODE

1. ENTERING TO SERVICE MODE

1) Press 🔇 button once on Remote Control.

2) Press 🔇 button again to keep pressing.

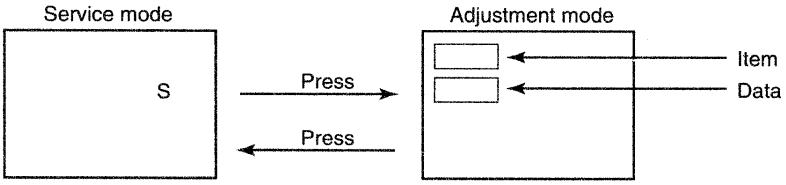
3) While pressing the 🔇 button, press MENU button on TV set.



(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF:	- / - - button (on Remote) or ⊖ button (on TV)
Test signal selection :	⊖ button (on Remote)
Selection of the adjustment items :	Channel ▲/▼ (on TV or Remote)
Change of the data value :	Volume ◿ +/– (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	CALL + Channel button on TV (▲)
Reset the count of operating protect circuit to "00":	CALL + Channel button on TV (▼)
"RCUT" selection :	1 button
"GCUT" selection :	2 button
"BCUT" selection :	3 button
"CNTX" (or "SCNT") selection :	4 button
"COLC" selection :	5 button– – – – Color thickness correction
"TNTC" selection :	6 button note: Displayed differently as shown below, de-
Test audio signal ON/OFF (1kHz) :	8 button pending on the setting of the receiving color
Self diagnostic display ON/OFF :	9 button system.
	COLP (PAL)
	COLC (NTSC)
	COLS (SECAM)

CAUTION : Never try to perform initialization unless you have changed the memory IC.

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode. (See SETTING & ADJUSTING DATA on page 19)

5. ADJUSTING THE DATA

1) Pressing of VOLUME ◿ +/– button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

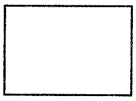
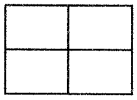
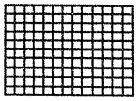
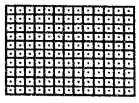
1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
3. Check the picture carefully. If necessary, adjust any adjustment item above. Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. TEST SIGNAL SELECTION

1) Every pressing of ⊖ button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.

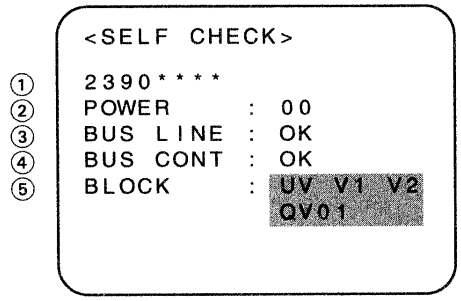
Signal off ⟶ NTSC signals (14 patterns)
⟵ PAL signals (14 patterns) ⟵

Signals	Picture
• Red raster • Green raster • Blue raster • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar • Black cross-bar on green raster	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
• H signal (white) • H signal (black)	

* The signals marked with ▒ are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

1) Press "9" button on Remote Control during display of adjustment menu in the service mode.
   The diagnosis will begin to check if interface among IC's are executed properly.
2) During diagnosis, the following displays are shown.



① Part number of microcomputer (QA01)
② Operation number of protecting circuit ----"00" is normal.
When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.
③ BUS LINE CHECK ----"OK" is normal.
"SDA1-GND" ---------- SDA-GND short circuit.
"SCL1-GND" ---------- SCL-GND short circuit.
"SCL1-SDA1" ---------- SCL-SDA short circuit.
④ BUS CONT ----"OK" is normal.
When indication shows "Q ○○○ NG", the device with the number may possibly be damaged.
⑤BLOCK
UV : TV reception mode
V1 : VIDEO 1 input mode (←①1)
V2 : VIDEO 2 input mode (←②2)

Indicated color of mode now selected : Green and Red
Indicated color of other modes : White

Green : Normal
Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.
QV01 : In case of indication green ---Normal
In case of indication red with input signal----
Failure may exist in output line including QV01.

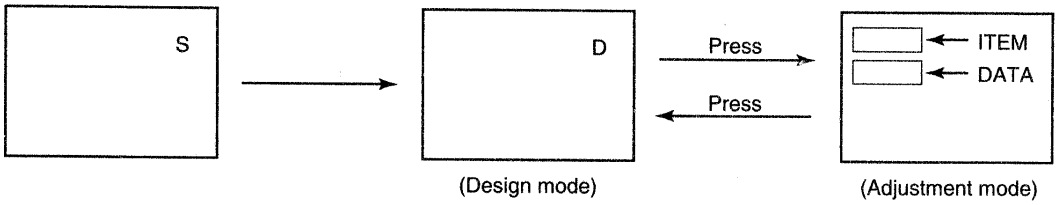
NOTE: Component which controls character display on screen is QT01 (TELETEXT IC.). If this display function fails to operate due to damage in QT01, self diagnosis procedure is as follows.
(1) In case that power indicator is blinking with interval of 0.5 seconds, it means protecting circuit (Current limiter) is operating, and circuit components may possibly be damaged. Check related components.
(2) In case that power indicator is blinking with interval of 1 second; Protecting circuit does not operate, but a part of Bus line does not operate normally. Check Bus line.

* The items marked with ▒ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

1) Select the Service mode. 2) While pressing CALL button on Remote and press MENU button on TV. 3) Press MENU button on TV.



(Design mode) (Adjustment mode)

When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.
Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

2. SELECTING THE ADJUSTING ITEMS

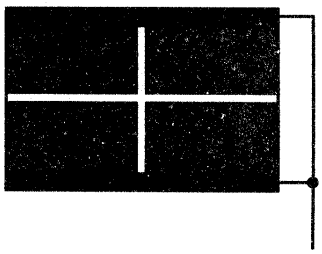
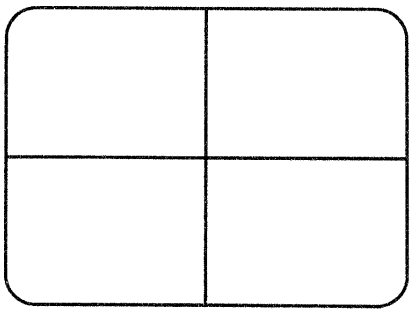
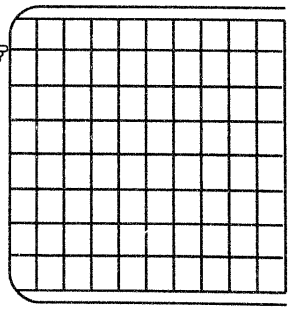
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3.
(▲ button for reverse order)

Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 20)

3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

ELECTRICAL ADJUSTMENTS

ITEM	ADJUSTMENT PROCEDURE
FOCUS VR ADJ	1. Enter the service mode, then select any register item. 2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen. 3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.
SUB-BRIGHTNESS (BRTC) Note: Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT).	1. Set CONTRAST to minimum, and BRIGHTNESS to center by adjusting user controls. 2. Set the TV in service mode to get white cross-bar of inside pattern. 3. Select BRTC (brightness correction), and adjust the ◿ – /+ button to reduce the value so that white portion of inside pattern slightly light. 4. Adjust ◿ – /+ button to increase the data value of BRTC, and set it just before the difference between the belt of vertical retrace and the border of black portion of inside pattern is visible. After that, return vertical height and contrast.  Belt of vertical retrace
HORIZONTAL POSITION ADJUSTMENT (HPOS) VERTICAL POSITION ADJUSTMENT (VPOS)	1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit. 2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL ▲, ▼ buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME ◿ – /+ buttons. 
VERTICAL AMPLITUDE ADJUSTMENT (HIT)	1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit. 2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◿ – /+ buttons so that vertical amplitude lacks a little. 3. Adjust vertical amplitude with VOLUME ◿ – /+ buttons so that the first bar on cross-hatch signal touches edge of screen. The first ☞ 

ITEM	ADJUSTMENT PROCEDURE
WHITE BALANCE ADJUSTMENT ● CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT) ● DRIVE ADJUSTMENT (GDRV) (BDRV)	1. Set Contrast to 40, and brightness to +20 by picture control. 2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button. 3. Select RCUT, GCUT and BCUT with CHANNEL ▲, ▼ buttons, to set individual values to Initial reference data, and to set GDRV and BDRV to Initial reference data with VOLUME ◿ – /+ buttons (See page 19). 4. Press [-/- -] button on the remote control and rotate Screen VR to get one slight horizontal line on screen. Note: Every pressing of [-/- -] button provides Horizontal line picture and Normal picture alternately. 5. Press [-/- -] button to release horizontal line picture, and select the two other colors which did not light in the above step with CHANNEL ▲, ▼ buttons. Then tap VOLUME ◿ – /+ buttons so that three colors slightly light in the same level. ※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust. ※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT. Light area check (to show white) Dark area check (to show black)

MODEL: S7ES Series (Reference factory adjustments)

1. SUB CONTRAST
   (Measuring point) Q501 #14 R-OUT
   (Adjusting signal) Sub Bright (NTSC) signal
   (Adjusting method)
   1. BUS data of Q501

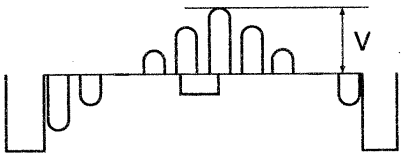
RCUT	(Q501 SUB ADDR:0C)	→ Initial value	(20H)
Yγ	(Q501 SUB ADDR:08/D7)	→ OFF	(0)
WPL	(Q501 SUB ADDR:08/D6)	→ OFF	(1)
PACL	(Q501 SUB ADDR:08/D5)	→ OFF	(0)
COLOR	(Q501 SUB ADDR:02/D7-D0)	→ MIN	(00H)

   2. Set user control to the standard 1
   3. Change to adjust SCNT data (Q501 SUB ADDR:05/D4~D0).
      ※ It makes the point which doesn't have a change and it adjust with screen VR.
   4. After adjustment, return the data which are set in steps 1, 2 above, to original data.

SPEC 2.5 ± 0.2 V p-p

2. SUB COLOR PAL (THIS ADJUSTMENT AFTER SUB COLOR NTSC)
   (Measuring point) Q501 #12 B-OUT
   (Adjusting signal) Sub Bright (PAL) signal
   (Adjusting method)
   1. Set BUS data of Q501 to the same value as that of SUB TINT adjustment.
   2. Set user control to the standard 1.
   3. Change COLP data (COLC Difference data) to adjust the 6th peak ampl of rainbow color bar.

Adjust the amplitude of color bar
(p-p value of the upper half)

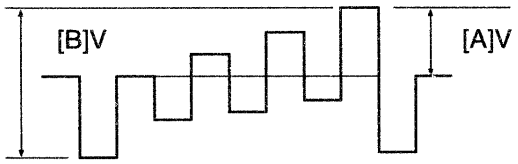


1.4 ± 0.2 V p-p

   4. After adjustment return the data set in steps 1,2 above, to the original data.

3. SUB COLOR SECAM (THIS ADJUSTMENT AFTER SUB COLOR NTSC)
   (Measuring point) Q501 #12 B-OUT
   (Adjusting signal) SECAM color bar signal
   (Adjusting method)
   1. Set BUS data of Q501 to the same value as that of SUB TINT adjustment.
   2. Set user control to the standard 1.
   3. Change COLS data (COLC Difference data) to adjust the 6th peak amplitude of SECAM color bar.

Adjust the amplitude of color bar.



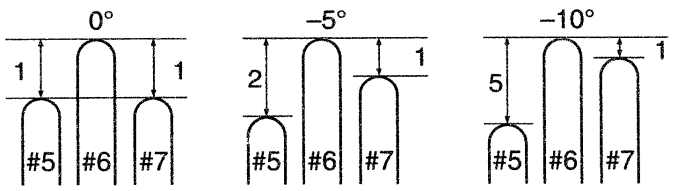
1.9 ± 0.2 V p-p

4. After adjustment, return the data set in steps 1, 2 above, to the original data.

4. SUB TINT
   (Measuring point) Q501 #12 B-OUT
   (Adjusting signal) Sub Bright (NTSC) signal
   (Adjusting method)
   1. BUS data of Q501

BDRV	(Q501 SUB ADDR:0A)	→ Initial value	(80H)
BCUT	(Q501 SUB ADDR:0E)	→ Initial value	(20H)
COLOR LIMITER	(Q501 SUB ADDR:0F/D2)	→ OFF	(0)
MUTE	(Q501 SUB ADDR:1B/D7~D6)	→ Y mute	(10)
P/N CD ATT	(Q501 SUB ADDR:12/D5~D4)	→ 0dB	(01)
S-field	(Q501 SUB ADDR:1F/D7)	→ OFF	(0)
SCD ATT	(Q501 SUB ADDR:1F/D6)	→ 0dB	(0)
P-ACL	(Q501 SUB ADDR:18/D5)	→ OFF	(0)

   2. Set user control to the standard 1
   3. Change to adjust TNTC data (Q501 SUB ADDR:03/D6D0) so that difference between 6th peak and 5th and 7th peaks of rainbow color bar becomes 2:1.

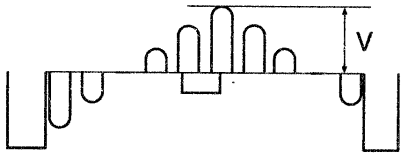


–5 ± 5 (°)

4. After adjustment, return the data which are set in steps 1, 2 above, to original data.

5. SUB COLOR NTSC
   (Measuring point) Q501 #12 B-OUT
   (Adjusting signal) Sub Bright (NTSC) signal
   (Adjusting method)
   1. Set BUS data of Q501 to the same value as that of Sub TINT adjustment.
   2. Set user control setting to the standard 1
   3. Change COLC data (Q501 SUB ADDR:02/D7~D0) to adjust the 6th peak amplitude of rainbow color bar.

Adjust the amplitude of color bar.
(p-p value of the upper half)



1.4 ± 0.2 V p-p

   4. After adjustment, return the data set in steps 1 and 2 above, to the original.

6. SUB BRIGHT
   (Adjusting signal) SUB Bright (PAL or NTSC) signal
   (Adjusting method)
   1. Set user control setting to the standard 1.
   2. Change BRTC data (Q501 SUB ADDR:01/D7D0) to set black collapse numbers by eye check.

SPEC 4 ± 1.5 V p-p

7. WHITE BALANCE ADJUSTMENT
   (Adjusting method)
   1. Set user control setting to the standard 1.
   2. BUS data of Q501

GDRV	(Q501 SUB ADDR:09)	→ Initial value	(80H)
BDRV	(Q501 SUB ADDR:0A)	→ Initial value	(80H)
RCUT	(Q501 SUB ADDR:0C)	→ Initial value	(20H)
GCUT	(Q501 SUB ADDR:0D)	→ Initial value	(20H)
BCUT	(Q501 SUB ADDR:0E)	→ Initial value	(20H)

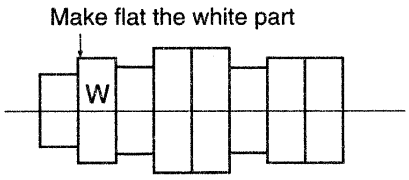
   3. Set the mode to the one horizontal line mode

MUTE	(Q501 SUB ADDR:1B/D7~D6)	→ H. Line	(11)
BRIGHT	(Q501 SUB ADDR:01)	→ Initial value	(80H)

   4. Change SCREEN VR to set it so that one of lines R, G and B will light slightly.
   5. Change CUTOFF data to adjust so that each one of R, G and B will light slightly (for about white).
   6. Release the H. Line mode.
   7. Change B/G drive data and R/G/B CUTOFF data to adjust white balance in bright area and dark area.

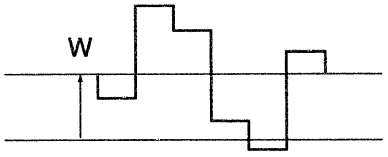
8. SECAM BELL FILTER ADJUSTMENT
   (Measuring point) Q501 #36 B-Y OUT
   (Adjusting signal) Color bar (SECAM) signal
   (Adjusting method)
   1. Connect resistor 1k ohm between color limiter terminal (Q501 #26) and 5V.
   2. Connect resistor 100 ohm between Q501 #35 and 5V.
   3. Set COLOR control data to "04H".
   4. Set MICOM YS output to "H", and set Q501 to DIGITAL RGB mode.
   5. Change BELL data (Q501 SUB ADDR:ifD1D0) to set it so that SECAM signal at #36 pin of Q501 (B-Y OUT) can be flat.
   6. After adjustment, remove resistor 1k ohm between color limiter terminal (Q501 #26). and 5V, and remove resistor 100 ohm between Q501 #35 and 5V, to return COLOUR control. data to original.

SPEC 100 ± 10 %



9. SECAM OFFSET ADJUSTMENT
   (Measuring point) Q501#35 R-Y OUT
   #36 B-Y OUT
   (Adjusting signal) Color bar (SECAM) signal
   (Adjusting method)
   1. Change SRY data (Q501 SUB ADDR:11/D7~D4) to coincide level of black and white part in color differential signal (R-Y) to the level of H. BLK part.

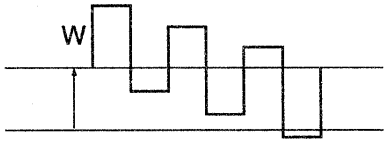
      Match the level of black and white signal part in color differential signal to that of H.BLK. (center of noise signal)



SPEC B-Y/R-Y 0 ± 10 mV p-p

   2. Change SBY data (Q501 SUB ADDR:11/D3~D0) to coincide level of black and white part in color differential signal (B-Y) to the level of H. BLK part.

      Match the level of black and white signal part in color differential signal to that of H.BLK. (center of noise signal)



SPEC B-Y/R-Y 0 ± 10 mV p-p

10. CHROMA TRAP ADJUSTMENT → NO ADJUSTMENT

11. Item, [VERT POSITION]

SETTING, CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal, WG Philips Pattern (Do not use French SECAM).

Measurement place, On Picture

Adjustment method, Adjust [VPOS] upper and lower position in Philips pattern may become a center. (Turn the direction of CPT to the south or the north when adjusting. Adjust the amount offsetting if it is not possible to do.)

12. Item, [V-HEIGHT]

SETTING, CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal, WG Philips Pattern (Do not use French SECAM).

Measurement place, On Picture

Adjustment method, Adjust the sub address [HIT] of Philips pattern may hide frag of the upper and lower sides in exactly.

13. Item, [HORIZONTAL POSITION]

SETTING, CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal, WG Philips Pattern (Do not use French SECAM).

Measurement place, On Picture

Adjustment method, Adjust the sub address [HPOS] of Philips pattern to center.
(Minimize D-C in the adjustment magnetic field on CRT.)

14. Item, [HORIZONTAL WIDTH][SIDE PINCUSHION][TRAPEZOID DISTORTION]

SETTING, CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER
After V-HEIGHT/V-POSITION adjustment.

Input signal, WG Philips Pattern (Do not use French SECAM).

Measurement place, On Picture

Adjustment method, Adjust Sub-address [WID] to just hide the flag that Philips Pattern is right and left and is white. Adjust Sub-address [PARA] and adjust the line of setting up in changeable right and left to the straight line. Move Sub-address [TRAP] and correct a trapezoid distortion. Again, adjust Sub-address [WID]. (Turn the direction of CPT to the east or the west when adjusting. Adjust the amount offsetting if it is not possible to do.)

15. V901 ADJUSTMENT
(Point) C.CRT adjusting magnetic field
(Adjusting magnetic field)

Correction field		Adjusting	Confirming
		perpendicular field	perpendicular field
Mid Near East	North field	35 μT	35 μT
Russian	North field	35 μT	35 μT
Asia, Hongkong	Zero field	0 μT	0 μT
New Zealand, Australia	South field	–50 μT	–50 μT

Adjusting procedure is based on working instruction of CPT Adjustment.

CIRCUIT CHECK

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage must be measured below Ⓑ kV.

Refer to table-1 for high voltage Ⓑ.
(See SETTING & ADJUSTING DATA on page 19)

4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CHAPTER 2 SPECIFIC INFORMATIONS

SETTING & ADJUSTING DATA

【 SAFETY INSTRUCTIONS 】

		29"
HIGH VOLTAGE AT ZERO BEAM:	Ⓐ	31.3 kV
MAX HIGH VOLTAGE:	Ⓑ	33.0 kV
AV VOLTAGE	Ⓒ	110~240 V

Table-1

【 SERVICE MODE 】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Adjustment	Reference data
RCUT	R CUTOFF (B/W)	20H
GCUT	G CUTOFF (B/W)	20H
BCUT	B CUTOFF (B/W)	20H
GDRV	G DRIVE	80H
BDRV	B DRIVE	80H
BRTC	SUB BRIGHT CEN	80H
COLC	SUB COLOR CEN NTSC	80H
TNTC	SUB TINT CEN	40H
COLP	SUB COLOR CEN PAL	00H
COLS	SUB COLOR CEN SECAM	00H
SCNT	SUB CONTRAST	0AH
HPOS	50Hz H-POSITION	09H
VPOS	V-POSITION	03H
HIT	HEIGHT	40H
VLIN	V-LINEARITY	0AH
WID	PICTURE WIDTH	0FH
PARA	E-W PARABOLA	27H
TRAP	TRAPEZIUM	10H
BELL	SECAM BELL FILTER	01H
SRY	SECAM R-Y	08H
SBY	SECAM-B-Y	08H

Table-2

【 DESIGN MODE 】

ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data	Remarks
* There are no adjustment mode in the DESIGN MODE.				

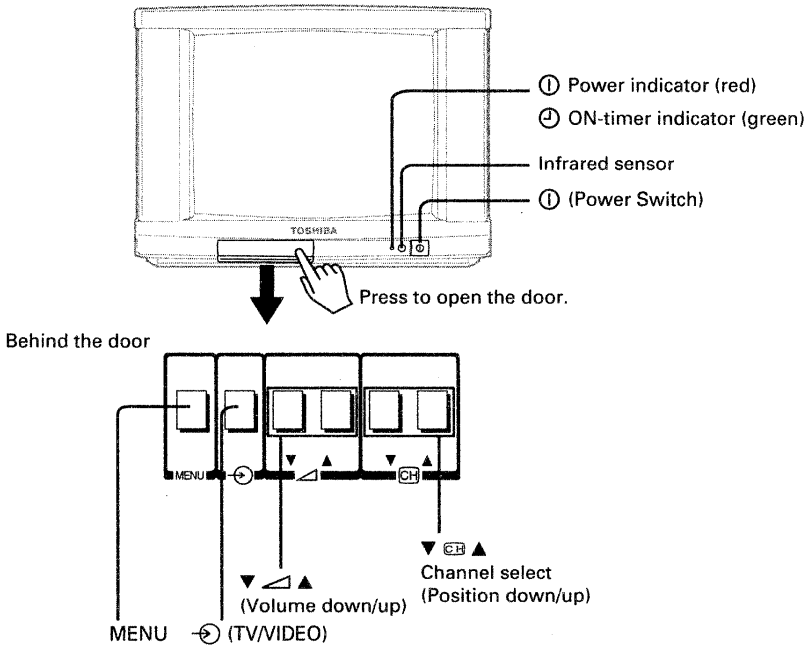
Table-3

LOCATION OF CONTROLS

(TV SET) (Representative Model: 2975SH)

• The following describes the name of each part of the TV and Remote Controller.

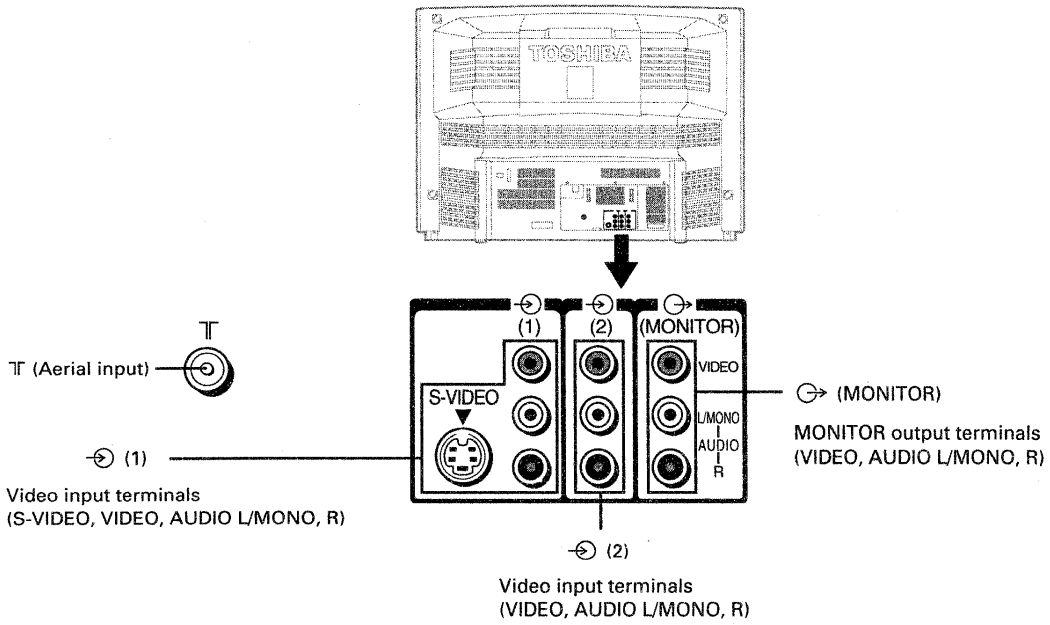
Front



Notes

- Functions of MENU, ⊕, ▼ ◿ ▲ and ▼ CH ▲ are also provided to the Remote Controller.
- When the TV set is in the standby mode, and the Remote Controller is not at your hand, you can turn on the set by pressing the ⊕, ▼ ◿ ▲ or ▼ CH ▲ button.

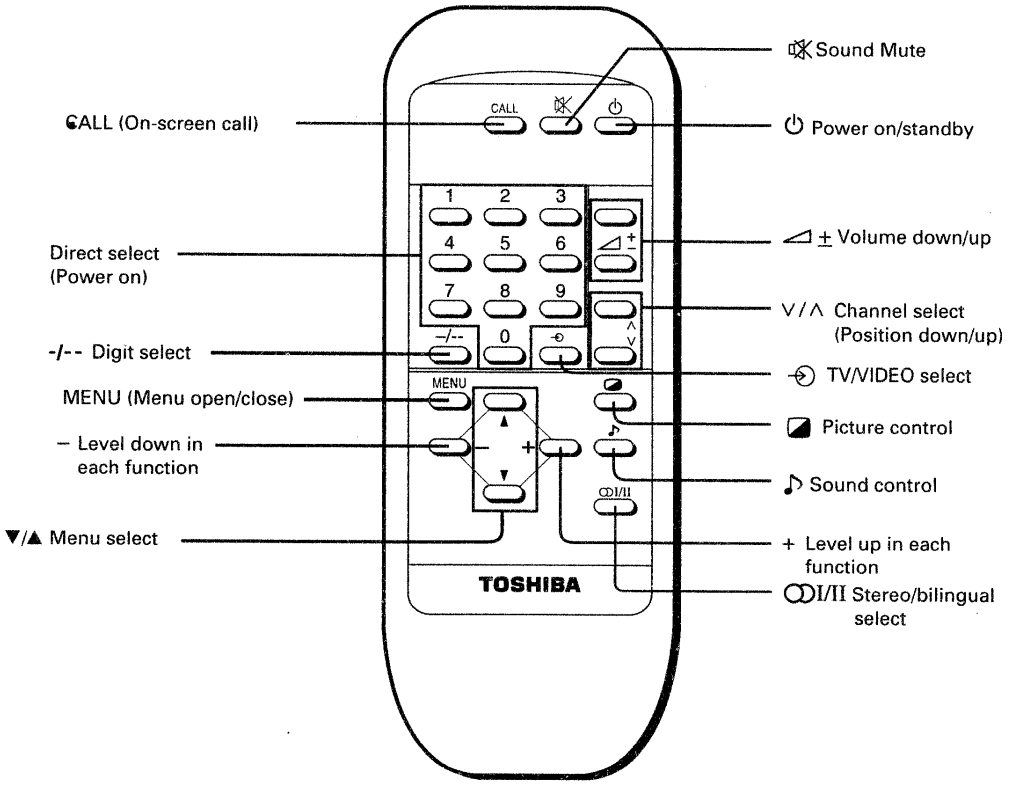
Back



LOCATION OF CONTROLS (REMOTE)

• The following describes the name of each part of the TV and Remote Controller.

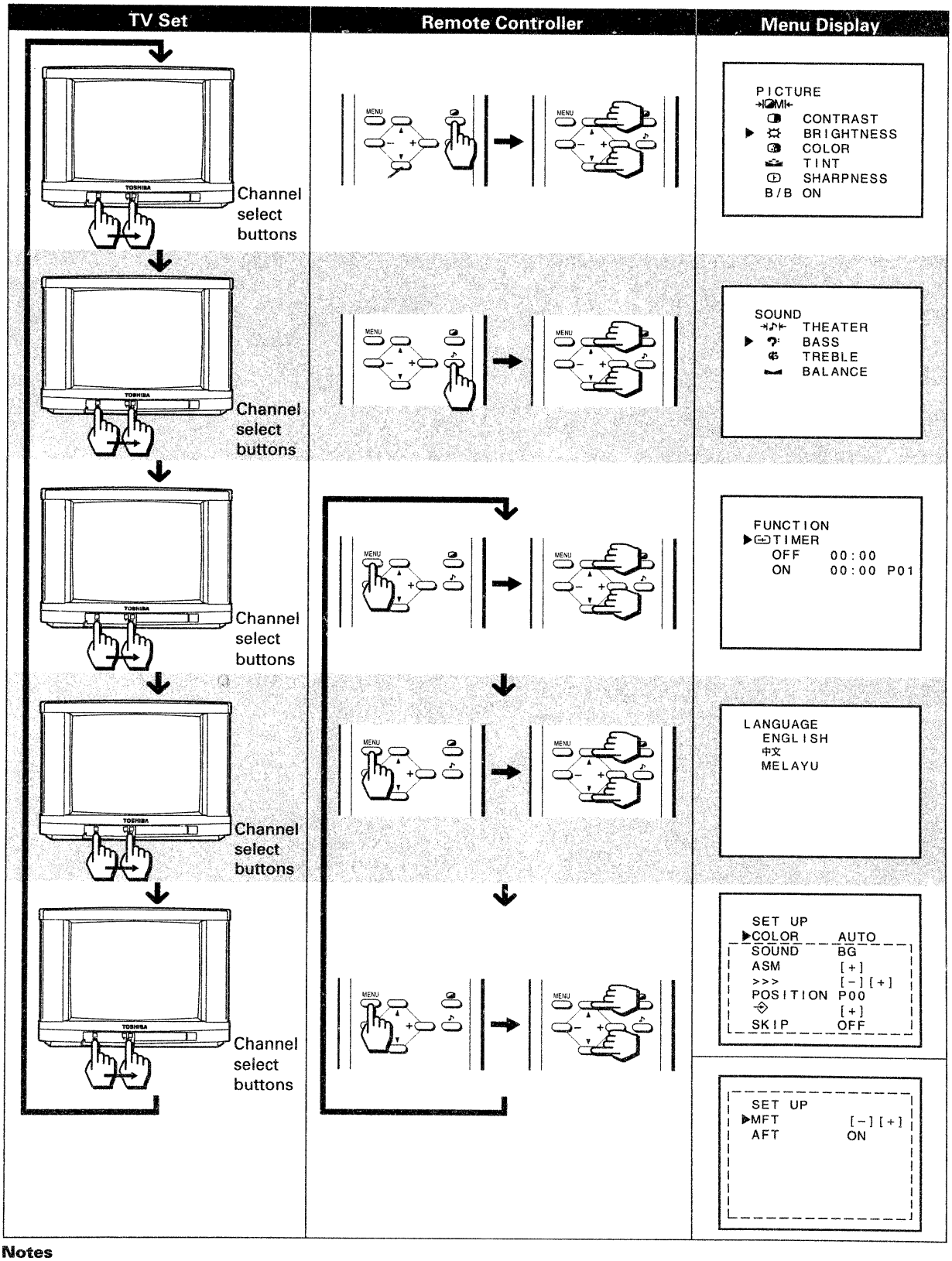
Remote Controller



Note:
You can turn on the set also by pressing one of the direct select buttons (0 – 9) instead of the ⏻ button. By pressing the number (one digit only) where the channel, you want to watch is preset, you can turn on the set and channel selection at the sametime.

MENU FUNCTION

- Before watching the TV, please familiarize yourself the method to use the menu function of this TV set.
- The owner's manual shows the explanation for operations mainly using the Remote Controller. But you can perform the operations using the buttons on the TV set as well.



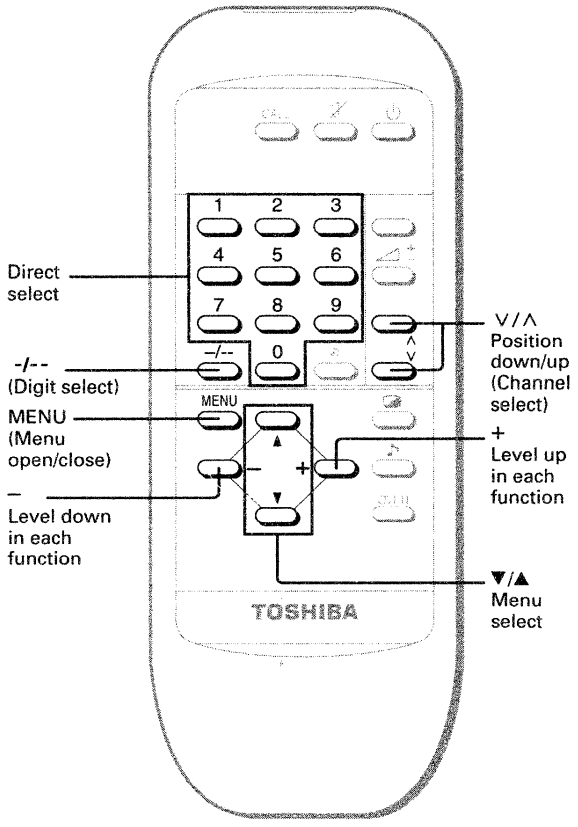
Notes

- To adjust or select (OFF/ON, etc) for each item, use the –/+ buttons.
- The ⋯ area on the SET UP menu display does not appear in the video mode.

PROGRAMMING CHANNEL MEMORY

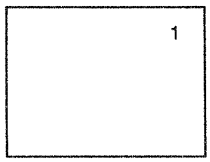
- First, use the ASM (Automatic Search Memory) function to preset all active channels in your area automatically.
  Then, arrange the preset channels with the SEARCH (>>>), SKIP, MFT (Manual Fine Tuning) and AFT (Auto Fine Tuning) functions so that you can tune into only desired channels.
- This section shows how to tune in channels using mainly the Remote Controller. You can also perform the system select, ASM, SEARCH (>>>), SKIP, MFT and AFT operations using the buttons on the TV set.

To preset channels (ASM)

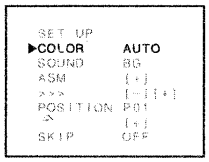


ASM (Automatic Search Memory)

1 Select the head of the position number to start the ASM with the position down (V)/up (Λ) buttons or the digit/ direct select buttons.

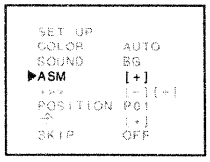


2 Press the MENU button repeatedly to call up the SET UP menu on the screen.

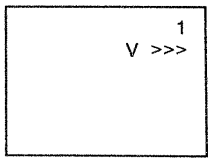


3 Confirm that "COLOR" is set to "AUTO" and "SOUND" is set to proper system.
If not, press the ▼/▲ buttons to move the cursor (▶) to "COLOR" or "SOUND" and press the –/+ buttons to select each proper system.

4 Press the ▼/▲ buttons to move the cursor (▶) to "ASM".



5 Press the "+" button to start the ASM. All active channels will be preset automatically.
When presetting is complete, the initial position number will reappear.



After presetting
Check the preset channels by pressing the position down (V)/up (Λ) buttons.

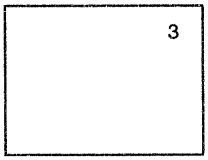
- If the picture or sound of a certain channel is not good, fine-tune the channel using the MFT function.
- If the colour of a certain channel is abnormal, automatic colour system selection (AUTO) may malfunction, or sound system selection is wrong. In such a case, select another colour and/or sound system.

- Use the SEARCH function if desired channels cannot be preset with the ASM or if you would like to preset the desired channels to specific position numbers one by one.
- The adjustments below are not necessary under normal conditions. However, in areas of inferior broadcast conditions where adjustment is necessary for a better picutre, adjust the tuning with the MFT (Manual Fine Tuning). The AFT OFF status automatically keeps the condition adjusted with the MFT function.
- The AFT (Auto Fine Tuning) function automatically corrects slight fluctuations when receiving signals.
- When using Manual Search to preset the channel, the AFT will automatically turn ON and SKIP to OFF.

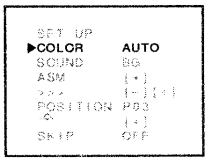
To preset channels (Manual search, AFT, MFT)

Manual search (>>>)

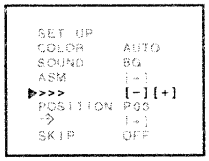
1 Select a position number with the position down (∨)/ up (∧) or digit/direct select buttons.



2 Press the MENU button repeatedly to call up the SET UP menu on the screen.

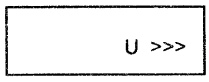


3 Press the ▼/▲ buttons to move the cursor (▶) to ">>>".

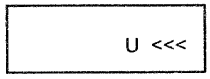


4 Press the –/+ buttons to start searching.
The – button searches for lower-numbered channels; the + button for higher-numbered channels.
Repeat this process until you can get the desired channel.

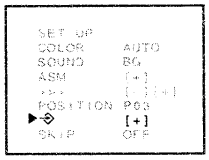
Ex. search up



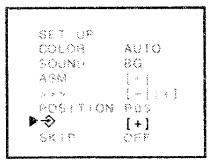
Ex. search down



5 When the desired programme is shown, press the ▼/▲ buttons to move the cursor (▶) to " ⇆ ".



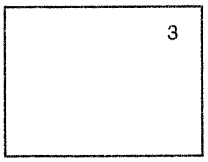
6 Press the + button to memorize the channel at the current postion.



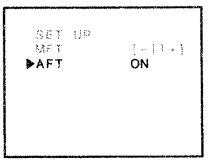
7 When you desire to store another channel at another postion, move the cursor (▶) to "POSITION" with the ▼/▲ buttons and select a desired position with the –/+ buttons.
Then, press the ▼/▲ buttons to move the cursor (▶) to ">>>" and repeat the steps 4 to 7.

MFT (Manual Fine Tuning)

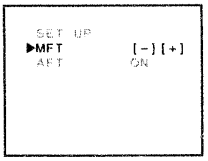
1 Select the position number you want to fine-tune with the position down (∨)/up (∧) buttons or digit/direct select buttons.



2 Press the MENU button repeatedly to call up the SET UP menu on the screen.



3 Press the ▼/▲ buttons to move the cursor (▶) to "MFT".

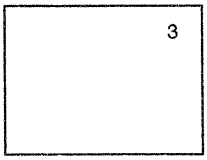


4 Press the –/+ buttons until the best possible picture and sound are obtained.

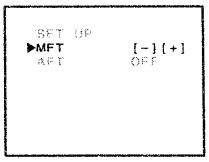
Note
When operating the MFT function, the AFT status is automatically set to OFF.

AFT (Auto Fine Tuning)

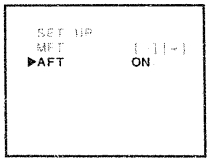
1 Select the position number you want to fine-tune with the position down (∨)/up (∧) buttons or digit/direct select buttons.



2 Press the MENU button repeatedly to call up the SET UP menu on the screen.



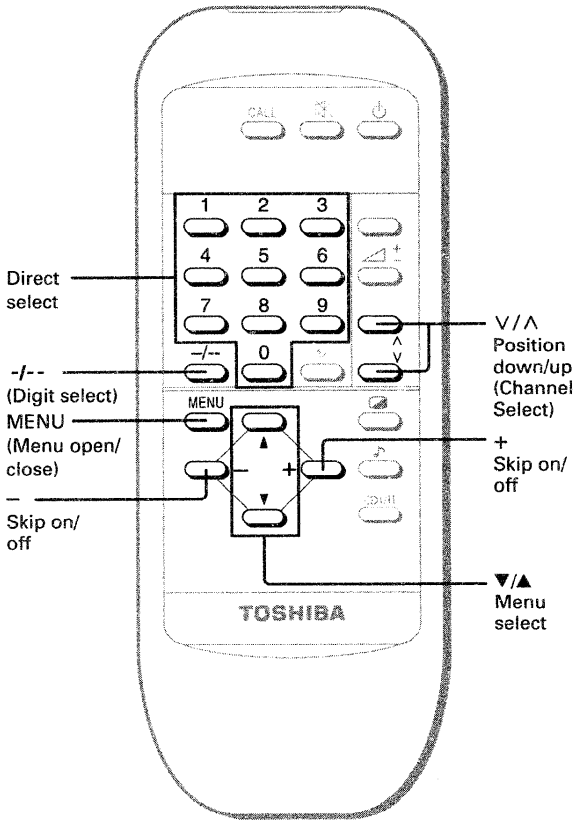
3 Press the ▼/▲ buttons to move the cursor (▶) to "AFT". Press the –/+ buttons to select the "ON" indication.



Note
When the position is set to AFT OFF status, the " ■ " mark appears to the left of the position number.
When the channel is set to AFT ON status, the position number is displayed without the " ■ " mark.

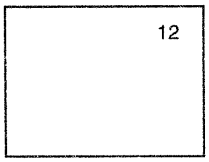
To skip unnecessary position numbers

After presetting the channels, you may skip unnecessary position numbers so that only the channels you want to watch are selected.

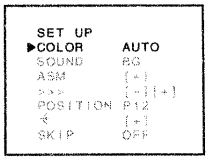


To skip a position number

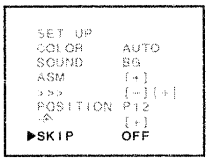
1 Select the position number to be skipped with the position down (∨)/up (∧) buttons or digit/direct select buttons.



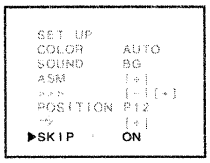
2 Press the MENU button repeatedly to call up the SET UP menu on the screen.



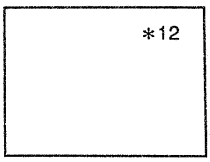
3 Press the ▼/▲ buttons to move the cursor (▶) to "SKIP".



4 Press the –/+ buttons to select "SKIP ON".



5 Press the MENU button to turn off the SET UP menu display.
Select the position number to be skipped with the direct select buttons. The * mark appears to the left of the position number.
The position number will then be skipped when you select the position with the position down (∨)/up (∧) buttons.



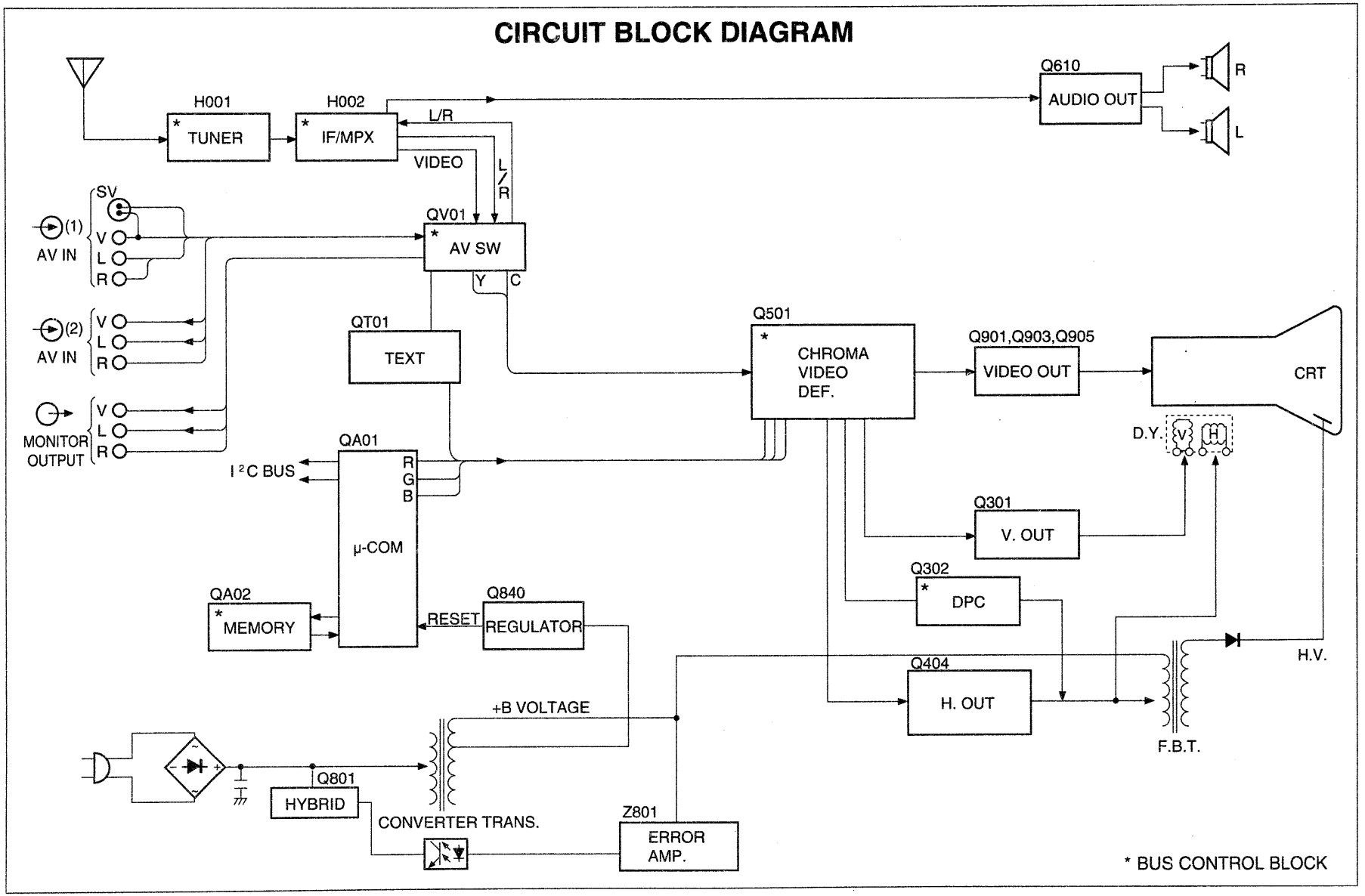
To restore a skipped position number

1 Select the position number you want to restore with the direct select (and/or digit select) buttons.

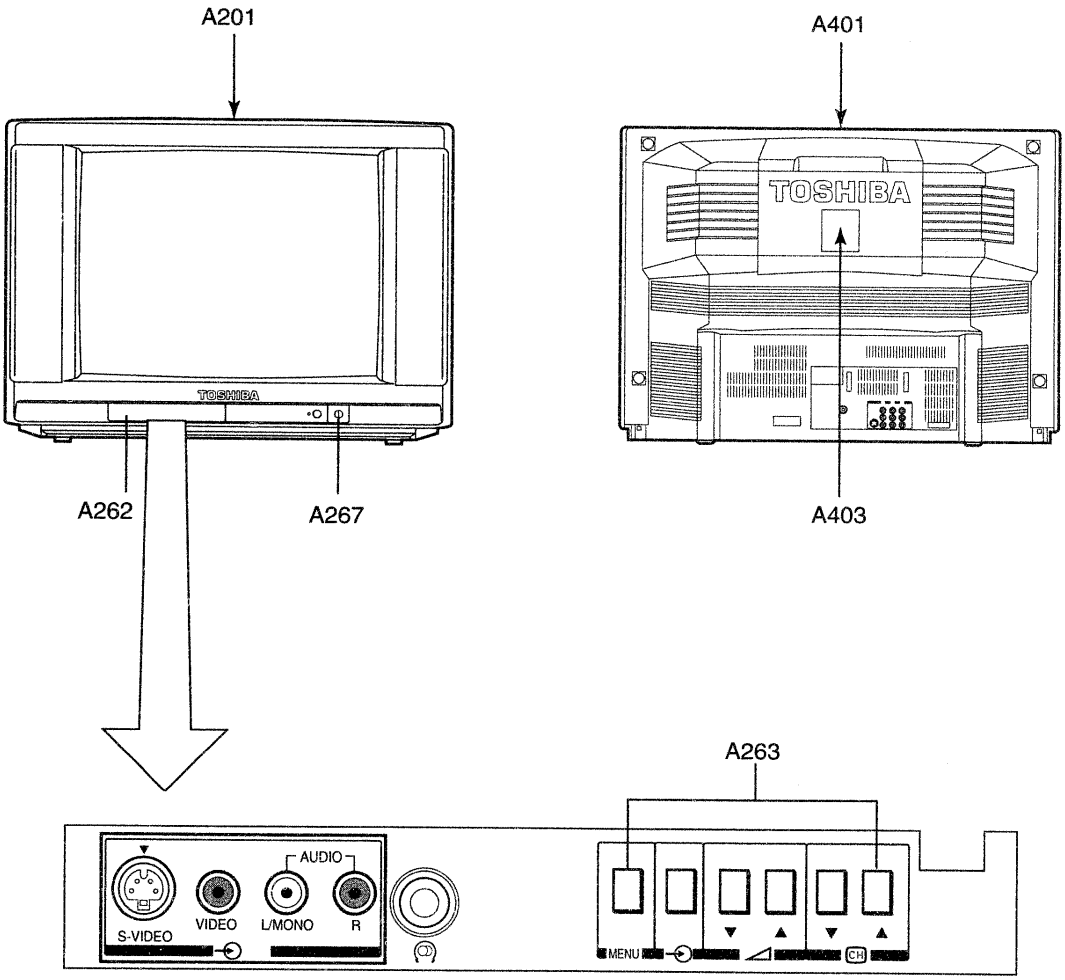
2 Press the MENU button to call up the SET UP menu display and press the ▼/▲ buttons to move the cursor (▶) to "SKIP".

3 Press the –/+ buttons to select "SKIP OFF".

CIRCUIT BLOCK DIAGRAM



CABINET REPLACEMENT PARTS LIST



Location No.	Part No.	Description
A201	23510349	Front Cover (2975DE)
A201	23510350	Front Cover (2975SH)
A262	23421842	Door, Proper (2975DE)
A262	23421843	Door, Proper (2975SH)
A263	23444877	Key, Control
A267	23444866	Knob, Power
A272	23436554	Handle
⚠A401	23426726	Back Cover
A403	23560783	Label, Model No. 2975DE
A403	23560784	Label, Model No. 2975SH

CHASSIS REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:
- *The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.*
- *The PC board assembly with * mark is no longer available after the end of the production.*

Model : 2975DE, 2975SH

Capacitors	CD	: Ceramic Disk	PF	: Plastic Film	EL	: Electrolytic
Resistors	CF	: Carbon Film	CC	: Carbon Composition	MF	: Metal Film
	OMF	: Oxide Metal Film	VR	: Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C101	24796479	EL, 4.7μF, ±20%, 35V
C102	24436221	CD, 220pF
C103	24794221	EL, 220μF, ±20%, 16V
C104	24567104	PF, 0.1μF
C105	24212102	CD, 1000pF, ±10%
C106	24206010	EL, 1μF, 50V
C107	24567104	PF, 0.1μF
C109	24567104	PF, 0.1μF
C111	24669229	EL, 2.2μF, ±20%, 50V
C112	24669229	EL, 2.2μF, ±20%, 50V
C120	24797478	EL, 0.47μF, ±20%, 50V
C121	24797478	EL, 0.47μF, ±20%, 50V
C123	24794221	EL, 220μF, ±20%, 16V
C199	24232103	CD, 0.01μF, +80%, -20%
C210	24538104	PF, 0.1μF
C212	24590104	PF, 0.1μF
C213	24797220	EL, 22μF, ±20%, 50V
C214	24212103	CD, 0.01μF, ±10%
C215	24794470	EL, 47μF, ±20%, 16V
C216	24797010	EL, 1μF, ±20%, 50V
C217	24797479	EL, 4.7μF, ±20%, 50V
C218	24590104	PF, 0.1μF
C220	24567104	PF, 0.1μF
C221	24567104	PF, 0.1μF
C222	24567104	PF, 0.1μF
C304	24214471	CD, 470pF, ±10%, 500V
C305	24617912	EL, 2.2μF, ±10%, 50V
C306	24073059	EL, 3300μF, ±20%, 25V
C307	24693473	PF, 0.047μF, 100V
C308	24668221	EL, 220μF, ±20%, 35V
C310	24073072	EL, 1000μF, ±20%, 35V
C311	24214561	CD, 560pF, ±10%, 500V
C313	24082057	PF, 0.22μF, 100V
C314	24590563	PF, 0.056μF
C315	24797010	EL, 1μF, ±20%, 50V
C315	24590102	PF, 1000pF
C318	24666101	EL, 100μF, ±20%, 16V
C319	24212102	CD, 1000pF, ±10%
C320	24668101	EL, 100μF, ±20%, 35V
C322	24617912	EL, 2.2μF, ±10%, 50V

Location No.	Part No.	Description
C323	24567154	PF, 0.15μF
C324	24567683	PF, 0.068μF
C325	24590183	PF, 0.018μF
C326	24591222	PF, 2200pF
C327	24617787	EL, 470μF, ±20%, 16V
C341	24794101	EL, 100μF, ±20%, 16V
C342	24795100	EL, 10μF, ±20%, 25V
C402	24232103	CD, 0.01μF, +80%, -20%
C403	24590223	PF, 0.022μF
C404	24669229	EL, 2.2μF, ±20%, 50V
C406	24590104	PF, 0.1μF
C407	24232103	CD, 0.01μF, +80%, -20%
C409	24212102	CD, 1000pF, ±10%
C413	24214821	CD, 820pF, ±10%, 500V
C417	24214391	CD, 390pF, ±10%, 500V
C420	24794101	EL, 100μF, ±20%, 16V
C430	24232103	CD, 0.01μF, +80%, -20%
C431	24794102	EL, 1000μF, ±20%, 16V
C432	24232103	CD, 0.01μF, +80%, -20%
C433	24794470	EL, 47μF, ±20%, 16V
C439	24232103	CD, 0.01μF, +80%, -20%
C440	24082928	PF, 7000pF, ±3%, 1500V
C441	24693472	PF, 4700pF, 100V
C442	24082916	PF, 0.27μF, 315V
C443	24667102	EL, 1000μF, ±20%, 25V
C444	24082610	PF, 5600pF, ±3%, 1800V
C445	24828563	PF, 0.056μF, 200V
C446	24829393	PF, 0.039μF, 400V
C447	24679220	EL, 22μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C463	24212222	CD, 2200pF, ±10%
C464	24640872	EL, 10μF, ±20%, 100V
C466	24797478	EL, 0.47μF, ±20%, 50V
C467	24082095	PF, 0.018μF, ±3%, 630V
C470	24666220	EL, 22μF, ±20%, 16V
C472	24567474	PF, 0.47μF
C477	24567393	PF, 0.039μF
C478	24567224	PF, 0.22μF
C501	24797478	EL, 0.47μF, ±20%, 50V
C502	24590103	PF, 0.01μF
C503	24797229	EL, 2.2μF, ±20%, 50V

Location No.	Part No.	Description
C504	24538104	PF, 0.1μF
C505	24538104	PF, 0.1μF
C508	24353120	CD, 12pF
C509	24794100	EL, 10μF, ±20%, 16V
C510	24232103	CD, 0.01μF, +80%, −20%
C511	24794101	EL, 100μF, ±20%, 16V
C512	24232103	CD, 0.01μF, +80%, −20%
C513	24232103	CD, 0.01μF, +80%, −20%
C514	24590104	PF, 0.1μF
C515	24232103	CD, 0.01μF, +80%, −20%
C521	24797010	EL, 1μF, ±20%, 50V
C610	24794100	EL, 10μF, ±20%, 16V
C612	24794470	EL, 47μF, ±20%, 16V
C661	24591102	PF, 1000pF
C662	24591102	PF, 1000pF
C663	24766100	EL, 10μF, ±20%, 50V
C670	24667470	EL, 47μF, ±20%, 25V
C671	24667470	EL, 47μF, ±20%, 25V
C673	24669229	EL, 2.2μF, ±20%, 50V
C676	24591104	PF, 0.1μF
C677	24591104	PF, 0.1μF
C678	24669229	EL, 2.2μF, ±20%, 50V
C679	24667470	EL, 47μF, ±20%, 25V
C681	24668102	EL, 1000μF, ±20%, 35V
C682	24668101	EL, 100μF, ±20%, 35V
C683	24668102	EL, 1000μF, ±20%, 35V
C690	24232103	CD, 0.01μF, +80%, −20%
C704	24591822	PF, 8200pF
C705	24232103	CD, 0.01μF, +80%, −20%
C707	24795470	EL, 47μF, ±20%, 25V
C712	24795470	EL, 47μF, ±20%, 25V
C713	24790100	EL, 10μF, ±20%, 160V
C714	24436101	CD, 100pF
C715	24214472	CD, 4700pF, ±10%, 500V
C716	24436101	CD, 100pF
C717	24214472	CD, 4700pF, ±10%, 500V
C718	24794470	EL, 47μF, ±20%, 16V
C719	24435560	CD, 56pF, 500V
C720	24790100	EL, 10μF, ±20%, 160V
C721	24794470	EL, 47μF, ±20%, 16V
C722	24436561	CD, 560pF
C726	24212102	CD, 1000pF, ±10%
⚠C801	24082927	PF, 0.22μF, ±20%, AC275V
C805	24092281	CD, 4700pF, ±20%, AC250V
C806	24092281	CD, 4700pF, ±20%, AC250V
C810	24086934	EL, 560μF, ±20%, 450V
⚠C813	24092567	CD, 1000pF, ±20%, AC250V
⚠C814	24092567	CD, 1000pF, ±20%, AC250V
C819	24567474	PF, 0.47μF
C831	24794470	EL, 47μF, ±20%, 16V
C841	24796100	EL, 10μF, ±20%, 35V
C842	24794100	EL, 10μF, ±20%, 16V
C843	24567104	PF, 0.1μF
C846	24567224	PF, 0.22μF
C860	24214103	CD, 0.01μF, ±10%, 500V
C861	24214471	CD, 470pF, ±10%, 500V
C862	24082857	PF, 680pF, ±2%
C863	24567104	PF, 0.1μF
C864	24092476	CD, 330pF, ±10%, 2kV
C866	24538474	PF, 0.47μF
C867	24590272	PF, 2700pF
C868	24676470	EL, 47μF, ±20%, 100V
C869	24678229	EL, 2.2μF, ±20%, 200V
C870	24082890	PF, 0.082μF, 800V

Location No.	Part No.	Description
C871	24092484	CD, 1500pF, ±10%, 2kV
C873	24567224	PF, 0.22μF
C876	24567474	PF, 0.47μF
C877	24667470	EL, 47μF, ±20%, 25V
C884	24086916	EL, 330μF, ±20%, 160V
C885	24214471	CD, 470pF, ±10%, 500V
C886	24214471	CD, 470pF, ±10%, 500V
C889	24668222	EL, 2200μF, ±20%, 35V
C891	24082229	PF, 0.1μF, ±10%, 250V
C892	24790100	EL, 10μF, ±20%, 160V
C893	24092338	CD, 270pF, ±10%, 2kV
C894	24092338	CD, 270pF, ±10%, 2kV
C898	24212102	CD, 1000pF, ±10%
C902	24092345	CD, 1000pF, ±10%, 2kV
C903	24436121	CD, 120pF
C904	24436471	CD, 470pF
C905	24436471	CD, 470pF
C906	24436121	CD, 120pF
C907	24436471	CD, 470pF
C908	24436121	CD, 120pF
C909	24679220	EL, 22μF, ±20%, 250V
C910	24797478	EL, 0.47μF, ±20%, 50V
C911	24203100	EL, 10μF, ±20%, 16V
C912	24794102	EL, 1000μF, ±20%, 16V
C913	24794220	EL, 22μF, ±20%, 16V
C914	24212103	CD, 0.01μF, ±10%
C930	24214101	CD, 100pF, ±10%, 500V
C931	24214101	CD, 100pF, ±10%, 500V
CA10	24212271	CD, 270pF, ±10%
CA22	24436150	CD, 15pF
CA23	24436150	CD, 15pF
CA24	24436150	CD, 15pF
CA25	24436150	CD, 15pF
CA33	24232103	CD, 0.01μF, +80%, −20%
CA34	24212101	CD, 100pF, ±10%
CA36	24436470	CD, 47pF
CA37	24212101	CD, 100pF, ±10%
CA38	24212101	CD, 100pF, ±10%
CA42	24794100	EL, 10μF, ±20%, 16V
CA43	24232103	CD, 0.01μF, +80%, −20%
CA44	24232103	CD, 0.01μF, +80%, −20%
CA68	24794100	EL, 10μF, ±20%, 16V
CA69	24232103	CD, 0.01μF, +80%, −20%
CB01	24794470	EL, 47μF, ±20%, 16V
CB20	24212101	CD, 100pF, ±10%
CB21	24212221	CD, 220pF, ±10%
CS01	24794100	EL, 10μF, ±20%, 16V
CS02	24797010	EL, 1μF, ±20%, 50V
CS03	24797010	EL, 1μF, ±20%, 50V
CS04	24797010	EL, 1μF, ±20%, 50V
CS05	24797010	EL, 1μF, ±20%, 50V
CS06	24797010	EL, 1μF, ±20%, 50V
CS07	24797010	EL, 1μF, ±20%, 50V
CS10	24794100	EL, 10μF, ±20%, 16V
CS11	24794100	EL, 10μF, ±20%, 16V
CS29	24203220	EL, 22μF, ±20%, 16V
CT01	24591104	PF, 0.1μF
CT02	24353100	CD, 10pF, ±0.25pF
CT03	24353150	CD, 15pF
CT04	24212102	CD, 1000pF, ±10%
CT05	24591104	PF, 0.1μF
CT06	24591104	PF, 0.1μF
CT07	24085944	EL, 2.2μF, ±20%, 50V, Non-Polar

Location No.	Part No.	Description
CT08	24232103	CD, 0.01μF, +80%, −20%
CT09	24763101	EL, 100μF, ±20%, 16V
CT10	24473220	CD, 22pF
CT14	24794100	EL, 10μF, ±20%, 16V
CT15	24474101	CD, 100pF, ±10%
CT16	24436220	CD, 22pF
CV01	24794101	EL, 100μF, ±20%, 16V
CV02	24567103	PF, 0.01μF
CV11	24232103	CD, 0.01μF, +80%, −20%
CV20	24794100	EL, 10μF, ±20%, 16V
CV22	24794100	EL, 10μF, ±20%, 16V
CV30	24085981	EL, 10μF, ±20%, 16V, Non-Polar
CV32	24232103	CD, 0.01μF, +80%, −20%
CV33	24232103	CD, 0.01μF, +80%, −20%
CV34	24762471	EL, 470μF, ±20%, 10V
CV35	24232103	CD, 0.01μF, +80%, −20%
CV36	24794221	EL, 220μF, ±20%, 16V
CV39	24794100	EL, 10μF, ±20%, 16V
CZ01	24794101	EL, 100μF, ±20%, 16V
CZ03	24085981	EL, 10μF, ±20%, 16V, Non-Polar
RESISTORS		
R101	24382183	OMF, 18k ohm, 1W
R102	24942226	CC, 22M ohm, 1/2W
R103	24366333	CF, 33k ohm
R104	24366225	CF, 2.2M ohm
R105	24366333	CF, 33k ohm
R106	24000245	MF, 33k ohm, ±1%, 1/4W
R107	24366221	CF, 220 ohm
R108	24000245	MF, 33k ohm, ±1%, 1/4W
R109	24366223	CF, 22k ohm
R210	24366271	CF, 270 ohm
R211	24366271	CF, 270 ohm
R212	24366271	CF, 270 ohm
R213	24366223	CF, 22k ohm
R214	24366824	CF, 820k ohm
R215	24366222	CF, 2200 ohm
R216	24366102	CF, 1k ohm
R217	24367822	CF, 8200 ohm, ±2%
R217	24366122	CF, 1200 ohm
R220	24366101	CF, 100 ohm
R221	24366222	CF, 2200 ohm
R228	24367822	CF, 8200 ohm, ±2%
R303	24366153	CF, 15k ohm
R304	24366104	CF, 100k ohm
R305	24322758	MF, 0.75 ohm, 1W
R306	24366473	CF, 47k ohm
R307	24366204	CF, 200k ohm
R308	24366102	CF, 1k ohm
R312	24382122	OMF, 1200 ohm, 1W
R314	24366103	CF, 10k ohm
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366154	CF, 150k ohm
R318	24366471	CF, 470 ohm
R319	24366471	CF, 470 ohm
R320	24366101	CF, 100 ohm
R327	24321109	MF, 1 ohm, 1/2W
R328	24339479	MF, 4.7 ohm, 2W
R329	24366223	CF, 22k ohm
R330	24366102	CF, 1k ohm
R330	24366102	CF, 1k ohm

Location No.	Part No.	Description
R331	24366183	CF, 18k ohm
R331	24366104	CF, 100k ohm
R332	24366392	CF, 3900 ohm
R332	24366223	CF, 22k ohm
R333	24366103	CF, 10k ohm
R336	24383221	OMF, 220 ohm, 2W
R338	24366183	CF, 18k ohm
R340	24382471	OMF, 470 ohm, 1W
R341	24366182	CF, 1800 ohm
R342	24366562	CF, 5600 ohm
R343	24310109	MF, 1.0 ohm, 1/2W
R344	24366392	CF, 3900 ohm
R349	24366153	CF, 15k ohm
R362	24366224	CF, 220k ohm
R374	24366104	CF, 100k ohm
R375	24366473	CF, 47k ohm
R401	24366104	CF, 100k ohm
R402	24366103	CF, 10k ohm
R403	24366472	CF, 4700 ohm
R405	24366103	CF, 10k ohm
R407	24366272	CF, 2700 ohm
R411	24366561	CF, 560 ohm
R413	24366151	CF, 150 ohm
R415	24382272	OMF, 2700 ohm, 1W
R416	24019321	OMF, 1500 ohm, 5W
R424	24546209	FR, 2.0 ohm, 1/2W
R425	24381471	OMF, 470 ohm, 1/2W
R426	24366751	CF, 750 ohm
R427	24366392	CF, 3900 ohm
R428	24366561	CF, 560 ohm
R429	24552560	OMF, 56 ohm, 1/2W
R430	24366103	CF, 10k ohm
R430	24366222	CF, 2200 ohm
R432	24531120	FR, 12 ohm, 1/2W
R433	24366472	CF, 4700 ohm
R434	24552121	OMF, 120 ohm, 1/2W
R441	24532102	FR, 1k ohm, 1W
R447	24382472	OMF, 4700 ohm, 1W
R448	24338478	MF, 0.47 ohm, 1W
R461	24366393	CF, 39k ohm
R463	24323689	MF, 6.8 ohm, 2W
R464	24366102	CF, 1k ohm
R465	24366472	CF, 4700 ohm
R466	24366333	CF, 33k ohm
R467	24366103	CF, 10k ohm
R470	24338568	MF, 0.56 ohm, 1W
R471	24531271	FR, 270 ohm, 1/2W
R473	24366153	CF, 15k ohm
R474	24381393	OMF, 39k ohm, 1/2W
R476	24366183	CF, 18k ohm
R477	24366184	CF, 180k ohm
R479	24531680	FR, 68 ohm, 1/2W
R480	24366561	CF, 560 ohm
R501	24366273	CF, 27k ohm
R509	24366102	CF, 1k ohm
R510	24366102	CF, 1k ohm
R610	24366273	CF, 27k ohm
R612	24366103	CF, 10k ohm
R661	24366122	CF, 1200 ohm
R662	24366122	CF, 1200 ohm
R663	24366333	CF, 33k ohm
R664	24366333	CF, 33k ohm
R667	24366103	CF, 10k ohm
R668	24366103	CF, 10k ohm

Location No.	Part No.	Description
R669	24366103	CF, 10k ohm
R676	24366229	CF, 2.2 ohm
R677	24366229	CF, 2.2 ohm
R702	24366222	CF, 2200 ohm
R709	24366563	CF, 56k ohm
R713	24366393	CF, 39k ohm
R715	24366223	CF, 22k ohm
R716	24366273	CF, 27k ohm
R717	24366333	CF, 33k ohm
R719	24366392	CF, 3900 ohm
R720	24366392	CF, 3900 ohm
R721	24366102	CF, 1k ohm
R722	24552471	OMF, 470 ohm, 1/2W
R723	24366471	CF, 470 ohm
R724	24366470	CF, 47 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552331	OMF, 330 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24366620	CF, 62 ohm
R737	24366152	CF, 1500 ohm
R738	24366123	CF, 12k ohm
R739	24366152	CF, 1500 ohm
R740	24366620	CF, 62 ohm
R741	24366279	CF, 2.7 ohm
R742	24366279	CF, 2.7 ohm
R743	24554221	OMF, 220 ohm, 2W
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R760	24366101	CF, 100 ohm
R775	24366182	CF, 1800 ohm
⚠R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R808	24019340	PTC Thermistor, 18 ohm, 290V
R811	24568271	Cement, 270 ohm, 7W
R812	24510479	Cement, 4.7 ohm, 5W
R813	24007061	Cement, 1.8 ohm, ±10%, 2W
R816	24366471	CF, 470 ohm
R817	24366331	CF, 330 ohm
R818	24366561	CF, 560 ohm
R819	24366102	CF, 1k ohm
R830	24548399	FR, 3.9 ohm, 2W
R831	24366331	CF, 330 ohm
R840	24531120	FR, 12 ohm, 1/2W
R841	24366752	CF, 7500 ohm
R846	24366332	CF, 3300 ohm
R848	24366470	CF, 47 ohm
R861	24384223	OMF, 22k ohm, 3W
R862	24552220	OMF, 22 ohm, 1/2W
R864	24552102	OMF, 1k ohm, 1/2W
R866	24381470	OMF, 47 ohm, 1/2W
R867	24366124	CF, 120k ohm
R868	24552103	OMF, 10k ohm, 1/2W
R870	24381750	OMF, 75 ohm, 1/2W
R871	24310109	MF, 1.0 ohm, 1/2W
R872	24377224	CF, 220k ohm, 1W
R874	24366124	CF, 120k ohm
R883	24552752	OMF, 7500 ohm, 1/2W
R884	24552752	OMF, 7500 ohm, 1/2W
R888	24322228	MF, 0.22 ohm, 1W

Location No.	Part No.	Description
R892	24366101	CF, 100 ohm
⚠R899	24005014	MF, 8.2M ohm, 1W
R901	24376102	CF, 1k ohm, 1/2W
R902	24376102	CF, 1k ohm, 1/2W
R903	24376102	CF, 1k ohm, 1/2W
R904	24366472	CF, 4700 ohm
R905	24366150	CF, 15 ohm
R912	24366221	CF, 220 ohm
R914	24366561	CF, 560 ohm
R915	24366121	CF, 120 ohm
R916	24366560	CF, 56 ohm
R917	24366391	CF, 390 ohm
R918	24366270	CF, 27 ohm
R919	24366221	CF, 220 ohm
R920	24000906	FR, 2.4 ohm, 2W
R921	24366561	CF, 560 ohm
R922	24366121	CF, 120 ohm
R924	24366270	CF, 27 ohm
R925	24366391	CF, 390 ohm
R926	24366221	CF, 220 ohm
R928	24366561	CF, 560 ohm
R929	24366121	CF, 120 ohm
R930	24366270	CF, 27 ohm
R932	24366102	CF, 1k ohm
R934	24366681	CF, 680 ohm
R935	24366272	CF, 2700 ohm
R936	24545150	FR, 15 ohm, 1/4W
R937	24366391	CF, 390 ohm
R942	24366562	CF, 5600 ohm
R943	24366562	CF, 5600 ohm
R944	24366562	CF, 5600 ohm
R945	24366560	CF, 56 ohm
R946	24366560	CF, 56 ohm
R960	24383153	OMF, 15k ohm, 2W
R961	24383153	OMF, 15k ohm, 2W
R962	24383153	OMF, 15k ohm, 2W
R963	24383153	OMF, 15k ohm, 2W
R964	24383153	OMF, 15k ohm, 2W
R965	24383153	OMF, 15k ohm, 2W
R977	24366122	CF, 1200 ohm
R992	24366150	CF, 15 ohm
RA02	24366102	CF, 1k ohm
RA03	24366102	CF, 1k ohm
RA04	24366682	CF, 6800 ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA09	24366102	CF, 1k ohm
RA10	24366102	CF, 1k ohm
RA11	24366102	CF, 1k ohm
RA12	24366102	CF, 1k ohm
RA13	24366102	CF, 1k ohm
RA15	24366433	CF, 43k ohm
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA19	24366221	CF, 220 ohm
RA22	24366152	CF, 1500 ohm
RA23	24366152	CF, 1500 ohm
RA24	24366152	CF, 1500 ohm
RA25	24366102	CF, 1k ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA30	24366223	CF, 22k ohm
RA31	24366103	CF, 10k ohm

Location No.	Part No.	Description
RA33	24366103	CF, 10k ohm
RA34	24366103	CF, 10k ohm
RA35	24366102	CF, 1k ohm
RA36	24366333	CF, 33k ohm
RA37	24366331	CF, 330 ohm
RA38	24366331	CF, 330 ohm
RA40	24366331	CF, 330 ohm
RA41	24366331	CF, 330 ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA64	24366333	CF, 33k ohm
RA65	24366333	CF, 33k ohm
RA67	24366103	CF, 10k ohm
RA68	24366103	CF, 10k ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA509	24366391	CF, 390 ohm
RA510	24366391	CF, 390 ohm
RB01	24366271	CF, 270 ohm
RB02	24366221	CF, 220 ohm
RB03	24366101	CF, 100 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB12	24366223	CF, 22k ohm
RB26	24366472	CF, 4700 ohm
RB27	24366103	CF, 10k ohm
RB28	24366104	CF, 100k ohm
RB30	24366103	CF, 10k ohm
RB43	24366103	CF, 10k ohm
RB44	24366562	CF, 5600 ohm
RB45	24366102	CF, 1k ohm
RB46	24366331	CF, 330 ohm
RB60	24366103	CF, 10k ohm
RB61	24366103	CF, 10k ohm
RR13	24366121	CF, 120 ohm
RR14	24366121	CF, 120 ohm
RR15	24366121	CF, 120 ohm
RR16	24366122	CF, 1200 ohm
RR17	24366122	CF, 1200 ohm
RR18	24366122	CF, 1200 ohm
RS01	24366103	CF, 10k ohm
RS02	24366104	CF, 100k ohm
RS03	24366103	CF, 10k ohm
RS04	24366104	CF, 100k ohm
RS09	24366820	CF, 82 ohm
RS14	24366101	CF, 100 ohm
RS15	24366101	CF, 100 ohm
RS17	24366472	CF, 4700 ohm
RS18	24366472	CF, 4700 ohm
RS19	24366101	CF, 100 ohm
RS20	24366222	CF, 2200 ohm
RS21	24366101	CF, 100 ohm
RS22	24366222	CF, 2200 ohm
RS23	24366102	CF, 1k ohm
RS24	24366102	CF, 1k ohm
RS27	24366561	CF, 560 ohm
RT01	24366332	CF, 3300 ohm
RT02	24366100	CF, 10 ohm
RT03	24366101	CF, 100 ohm
RT04	24366273	CF, 27k ohm
RT05	24366103	CF, 10k ohm
RT07	24366102	CF, 1k ohm

Location No.	Part No.	Description
RT08	24366103	CF, 10k ohm
RT09	24366101	CF, 100 ohm
RT15	24366101	CF, 100 ohm
RT16	24366101	CF, 100 ohm
RT17	24366102	CF, 1k ohm
RT18	24366152	CF, 1500 ohm
RT19	24366122	CF, 1200 ohm
RT20	24366471	CF, 470 ohm
RT21	24366561	CF, 560 ohm
RT97	24366102	CF, 1k ohm
RT98	24366102	CF, 1k ohm
RT99	24366102	CF, 1k ohm
RV01	24366103	CF, 10k ohm
RV05	24366223	CF, 22k ohm
RV10	24366101	CF, 100 ohm
RV11	24366472	CF, 4700 ohm
RV12	24366101	CF, 100 ohm
RV13	24366472	CF, 4700 ohm
RV14	24366101	CF, 100 ohm
RV21	24366221	CF, 220 ohm
RV24	24552101	OMF, 100 ohm, 1/2W
RV25	24366750	CF, 75 ohm
RV26	24366101	CF, 100 ohm
RV29	24366223	CF, 22k ohm
RV30	24366820	CF, 82 ohm
RV31	24366820	CF, 82 ohm
RV32	24366101	CF, 100 ohm
RV90	24366101	CF, 100 ohm
RV91	24366101	CF, 100 ohm

COILS & TRANSFORMERS

L202	23289100	Coil, Peaking, TRF4100AF
L301	23103859	Coil (Ferrite Bead), TEM2011
L302	23237975	Coil, Peaking, TRF4101AC
L430	23289470	Coil, Peaking, TRF4470AF
L431	23289100	Coil, Peaking, TRF4100AF
L441	23233072	Coil, Linearity, TLN2115G
L442	23248122	Coil, Choke, TLN3384D
L461	23248115	Coil, Choke, TLN3367D
L462	23231197	Deflection Yoke, TDY-629KS
L463	23103859	Coil (Ferrite Bead), TEM2011
L503	23289100	Coil, Peaking, TRF4100AF
L505	23289100	Coil, Peaking, TRF4100AF
L702	23261974	Coil, Choke, HC5-035
L704	23103859	Coil (Ferrite Bead), TEM2011
L705	23103859	Coil (Ferrite Bead), TEM2011
L805	23248150	Coil, Choke, TLN3427
L806	23248150	Coil, Choke, TLN3427
L861	23103859	Coil (Ferrite Bead), TEM2011
L862	23103937	Coil (Ferrite Bead), TEM2004
L883	23103775	Coil (Ferrite Bead), TEM2014
L884	23103775	Coil (Ferrite Bead), TEM2014
L885	23248073	Coil, Choke, TLN3299D
L886	23103859	Coil (Ferrite Bead), TEM2011
L887	23280016	Coil, Peaking, TRF4100AZ
L888	23103859	Coil (Ferrite Bead), TEM2011
⚠L901	23200294	Coil, Degaussing, TSB-2366AG
L902	23289221	Coil, Peaking, TRF4221AF
L903	23289221	Coil, Peaking, TRF4221AF
L904	23289221	Coil, Peaking, TRF4221AF
L905	23289390	Coil, Peaking, TRF4390AF
L906	23289390	Coil, Peaking, TRF4390AF
L907	23289390	Coil, Peaking, TRF4390AF
LA01	23289100	Coil, Peaking, TRF4100AF

Location No.	Part No.	Description
LT01	23289339	Coil, Peaking, TRF43R3AF
LT02	23238562	Coil, Peaking, TRF4109AJ
LT03	23289150	Coil, Peaking, TRF4150AF
LT04	23238714	Coil, Peaking, TRF4100AJ
LT05	23238714	Coil, Peaking, TRF4100AJ
LT06	23238714	Coil, Peaking, TRF4100AJ
LT07	23238714	Coil, Peaking, TRF4100AJ
LT08	23103859	Coil (Ferrite Bead), TEM2011
LT10	23238506	Coil, Peaking, TRF4229AJ
LT12	23238506	Coil, Peaking, TRF4229AJ
LT13	23238506	Coil, Peaking, TRF4229AJ
LT15	23238710	Coil, Peaking, TRF4220AJ
LT97	23238714	Coil, Peaking, TRF4100AJ
LT98	23238714	Coil, Peaking, TRF4100AJ
LT99	23238714	Coil, Peaking, TRF4100AJ
T401	23224336	Transformer, Horiz. Drive, TLN1083
⚠T461	23236529	Transformer, Flyback, TFB4132DD
⚠T801	23211703	Line Filter, TRF3196AQ
⚠T862	23217393	Transformer, Converter, TPW3397AS

SEMICONDUCTORS

Q101	23114528	Transistor, 2SC1740S-Q
Q205	23114530	Transistor, 2SA933S-Q
Q220	23114530	Transistor, 2SA933S-Q
Q301	B0378560	IC, TA8427K
Q302	B0384625	IC, TA8859CP
Q310	A6002020	Transistor, RN1202
Q311	A6002040	Transistor, RN1204
Q340	23114530	Transistor, 2SA933S-Q
Q402	A678971D	Transistor, 2SC1569 FA-5
Q404	A6872801	Transistor, 2SD2253(FA)
Q420	23314141	Transistor, 2SC3852
Q421	23114528	Transistor, 2SC1740S-Q
Q430	23314141	Transistor, 2SC3852
Q432	A6002030	Transistor, RN1203
Q460	23314938	Transistor, 2SD2493(D)
Q461	23114530	Transistor, 2SA933S-Q
Q470	A6547250	Transistor, 2SA1320
Q501	B0101527	IC, TB1230N
Q608	A6342206	Transistor, 2SC2878-A(TE
Q609	A6342206	Transistor, 2SC2878-A(TE
Q610	B0376856	IC, TA8211AH
Q612	23114530	Transistor, 2SA933S-Q
Q706	23114528	Transistor, 2SC1740S-Q
Q707	A6734590	Transistor, 2SC752(G)TM-Y
Q709	23114528	Transistor, 2SC1740S-Q
Q710	23114530	Transistor, 2SA933S-Q
Q711	23314911	Transistor, 2SB1569A
Q712	23314914	Transistor, 2SD2400A
Q719	23114528	Transistor, 2SC1740S-Q
Q720	23114528	Transistor, 2SC1740S-Q
Q773	23114528	Transistor, 2SC1740S-Q
Q801	23906249	IC, STR-Z4302A
Q817	23114528	Transistor, 2SC1740S-Q
Q818	A6012010	Transistor, RN2201
Q819	23114528	Transistor, 2SC1740S-Q
Q830	23314141	Transistor, 2SC3852
Q840	23318299	IC, L78MR05
Q843	A6002050	Transistor, RN1205
Q846	A6360200	Transistor, 2SC3333
⚠Q862	A8643108	Photo Coupler, TLP621(GR-LF

Location No.	Part No.	Description
Q872	23314141	Transistor, 2SC3852
Q883	A6907752	IC, S1854 FA-1
Q901	23314811	Transistor, 2SC5147
Q902	23114528	Transistor, 2SC1740S-Q
Q903	23314811	Transistor, 2SC5147
Q904	23114528	Transistor, 2SC1740S-Q
Q905	23314811	Transistor, 2SC5147
Q906	23114528	Transistor, 2SC1740S-Q
Q907	23114530	Transistor, 2SA933S-Q
Q908	A6321265	Transistor, 2SC2120-Y(TE)
QA01	23906323	IC, M37222M6-F83 (2975DE)
QA01	23906232	IC, M37222M6-E88SP (2975SH)
QA02	23904665	IC, NM24C04EN
QA03	23114528	Transistor, 2SC1740S-Q
QA04	23114528	Transistor, 2SC1740S-Q
QB01	23114528	Transistor, 2SC1740S-Q
QB02	23114530	Transistor, 2SA933S-Q
QB03	A6002050	Transistor, RN1205
QB21	23114528	Transistor, 2SC1740S-Q
QB30	23114528	Transistor, 2SC1740S-Q
QB40	23114528	Transistor, 2SC1740S-Q
QS01	23114528	Transistor, 2SC1740S-Q
QS02	23114528	Transistor, 2SC1740S-Q
QS03	A6342206	Transistor, 2SC2878-A(TE
QS04	A6342206	Transistor, 2SC2878-A(TE
QT01	23904899	IC, SAA5281ZP/E
QT04	23114530	Transistor, 2SA933S-Q
QT05	23114528	Transistor, 2SC1740S-Q
QV01	B0385655	IC, TA1219N
QV02	23114528	Transistor, 2SC1740S-Q
QV03	23114528	Transistor, 2SC1740S-Q
D101	23115922	Diode, Zener, μPC574J(M)
D102	23118859	Diode, 1SS133
D103	23118859	Diode, 1SS133
D201	23316687	Diode, Zener, MTZJ9.1B
D202	23316687	Diode, Zener, MTZJ9.1B
D203	23316687	Diode, Zener, MTZJ9.1B
D204	23115537	Diode, 1SS131
D301	23118479	Diode, BYD33J
D305	23118859	Diode, 1SS133
D306	23118859	Diode, 1SS133
D308	23118479	Diode, BYD33J
D319	23118822	Diode, ERB12-02
D320	23118822	Diode, ERB12-02
D332	23316794	Diode, SC570A
D340	23316650	Diode, Zener, MTZJ2.4A
D401	23316685	Diode, Zener, MTZJ8.2C
D403	23316667	Diode, Zener, MTZJ4.7C
D406	23118479	Diode, BYD33J
D408	A7580658	Diode, 3JH41
D420	23316680	Diode, Zener, MTZJ7.5A
D431	23316690	Diode, Zener, MTZJ10B
D441	23316688	Diode, Zener, MTZJ9.1C
D443	23118859	Diode, 1SS133
D461	23316582	Diode, ERC20-06
D464	23316648	Diode, Zener, MTZJ2.2A
D467	A7568754	Diode, 1S1887AFA-1
D468	23316718	Diode, Zener, MTZJ12A
D470	23316719	Diode, Zener, MTZJ12B
D477	23115537	Diode, 1SS131
D610	23118859	Diode, 1SS133
D611	23118859	Diode, 1SS133
D612	23118859	Diode, 1SS133
D615	23118859	Diode, 1SS133

Location No.	Part No.	Description
D616	23118859	Diode, 1SS133
D617	23118859	Diode, 1SS133
D618	23118859	Diode, 1SS133
D619	23118859	Diode, 1SS133
D704	23115537	Diode, 1SS131
D705	23115537	Diode, 1SS131
D715	23115537	Diode, 1SS131
D720	23115537	Diode, 1SS131
D721	23115537	Diode, 1SS131
D801	23316795	Diode, D6SB60L, F05
D818	23316723	Diode, Zener, MTZJ13C
D830	23316672	Diode, Zener, MTZJ5.6B
D842	23316360	Diode, Zener, UZ27BSC
D844	23316747	Diode, Zener, MTZJ27C
D845	23316686	Diode, Zener, MTZJ9.1A
D847	23316675	Diode, Zener, MTZJ6.2B
D862	23118094	Diode, EU2A
D864	23118094	Diode, EU2A
D872	23316724	Diode, Zener, MTZJ15A
D875	23316725	Diode, Zener, MTZJ15B
D876	23118859	Diode, 1SS133
D878	23316747	Diode, Zener, MTZJ27C
D880	23118859	Diode, 1SS133
D883	23316531	Diode, RG4
D884	23316531	Diode, RG4
D885	23316766	Diode, RU2YX
D886	23316766	Diode, RU2YX
D890	23118859	Diode, 1SS133
D891	23316554	Diode, 1SS146
D901	23115537	Diode, 1SS131
D903	23115537	Diode, 1SS131
D904	23115537	Diode, 1SS131
D905	23115537	Diode, 1SS131
D906	23115537	Diode, 1SS131
D907	23115537	Diode, 1SS131
D908	23115537	Diode, 1SS131
D909	23115537	Diode, 1SS131
D910	23115537	Diode, 1SS131
D911	A7568250	Diode, 1S1834
DA11	23118859	Diode, 1SS133
DA12	23118859	Diode, 1SS133
DA36	23118859	Diode, 1SS133
DA42	23316675	Diode, Zener, MTZJ6.2B
DA61	23118859	Diode, 1SS133
DA62	23118859	Diode, 1SS133
DA68	23316675	Diode, Zener, MTZJ6.2B
DB01	A8636650	Diode (LED), TLSG116
DB03	23358522	LED, SIR-56SB3F
DB30	23118859	Diode, 1SS133

MISCELLANEOUS

B205	23470491	Frame, Back Terminal
E912	23848729	Rubber Wedge
⚠F470	23144829	Fuse, 1.0A
F470A	23165433	Holder, Fuse
⚠F801	23144508	Fuse, 4.0A
F801A	23165433	Holder, Fuse
G101	23221803	Coil, Choke, TLN3040D
G614	23238714	Coil, Peaking, TRF4100AJ
G615	23238714	Coil, Peaking, TRF4100AJ
G616	24366103	CF, 10k ohm
G714	24545220	FR, 22 ohm, 1/4W
G882	23316331	Diode, Zener, UZ11BSC
GA60	24366470	CF, 47 ohm

Location No.	Part No.	Description
H002	23148290	Module, MVCS45B, MULTI IF MPX A-PR
KB01	23904946	Remote Sensor, RPM-676CBR-S
L462A	23199314	Compensator, DY, TC-E
L462B	23948535	Convergence Corrector, TC-U(PLUS)
L462C	23948536	Convergence Corrector, TC-V(MINUS)
L462D	23199192	Conver Revision Board
⚠P801	23372024	Power Cord (2975DE)
⚠P801	23372027	Power Cord (2975SH)
PV01	23365867	Jack, 9P
PV02	23365818	Jack, SVHS
⚠S801	23344385	Switch, Power
SA01	23145227	Switch, Push, 1C1P
SA02	23145227	Switch, Push, 1C1P
SA03	23145227	Switch, Push, 1C1P
SA04	23145227	Switch, Push, 1C1P
SA05	23145227	Switch, Push, 1C1P
SA06	23145227	Switch, Push, 1C1P
⚠SR81	23146564	Relay, DC12V
UY01	23148291	Module, PMPN14H
⚠V901A	23902891	Socket, CRT, 10P
V901M	23102438	Magnet, Purity-Convergence, MAG-1093
W661	23351116	Speaker, SPK-1382, 60x120mm, 8 ohm
W662	23351116	Speaker, SPK-1382, 60x120mm, 8 ohm
X501	23153438	Crystal, 16.2
XA01	23153325	Ceramic Resonator, 8.00M, TCR1056
XT01	23153472	Crystal, 27M
XZ01	23303193	Filter, Comb, MN139T
Z860	23144451	Protector, PRF5000, 125V, 5A

PC BOARD ASSEMBLIES

* U901	CRT Drive Board, PB7601
* U902	Signal Board, PB7786 (2975DE)
* U902	Signal Board, PB7696 (2975SH)
* U903	Pow/DEF Board, PB7689 (2975DE)
* U903	Pow/DEF Board, PB7697 (2975SH)
* U904	Text Board, PB7045 (2975DE)
* U905	Power S/W Board, PB7604

PICTURE TUBE

⚠V901	23312742	Picture Tube, A68KVL74XDT3 (2975DE)
⚠V901	23312754	Picture Tube, A68KVL74X(DT (2975SH)

TUNER

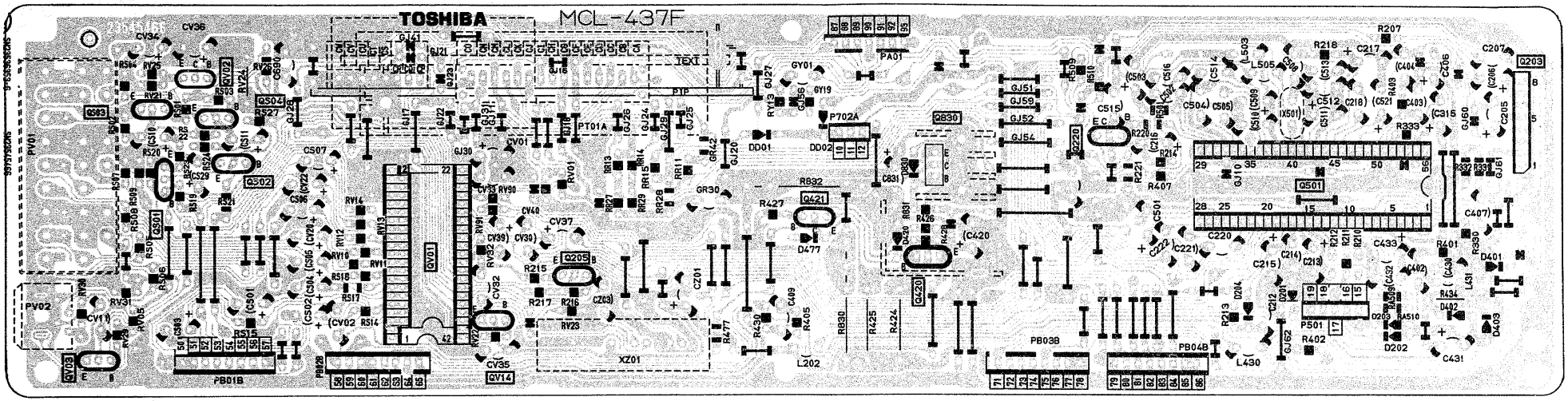
H001	23321269	Tuner, ECA14

Location No.	Part No.	Description
ACCESSORIES		
K902	23306194	Remote Hand Unit, CT-9881 (2975DE)
Y101	23563088	Owner's Manual, English, 2975DE/2975SH
K902	23306193	Remote Hand Unit, CT-9878 (2975SH)
Y101	23563089	Owner's Manual, Hong Kong, 2975SH

Location No.	Part No.	Description

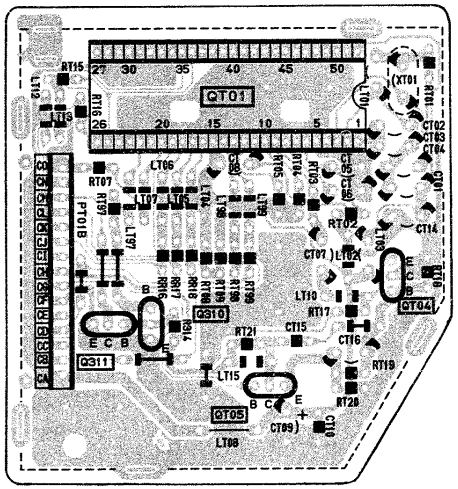
SIGNAL BOARD PB7786

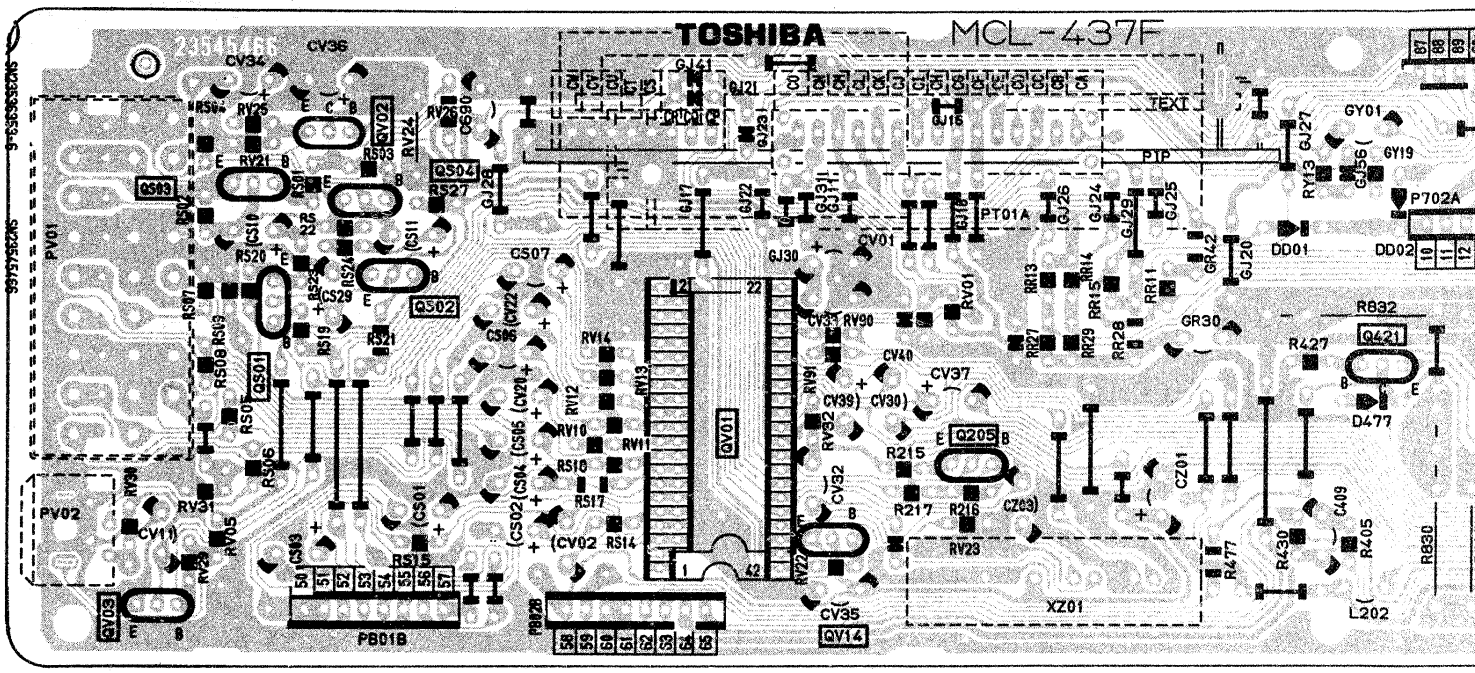
BOTTOM (FOIL) SIDE



TEXT BOARD PB7045 (2975DE only)

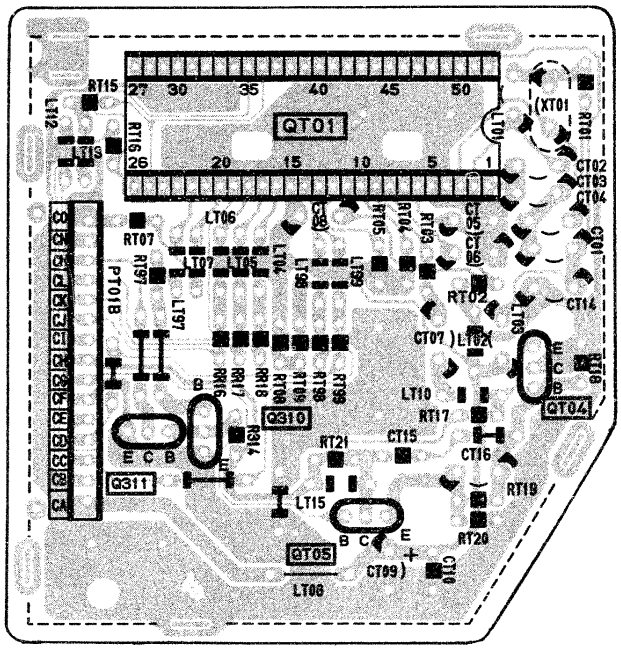
BOTTOM (FOIL) SIDE





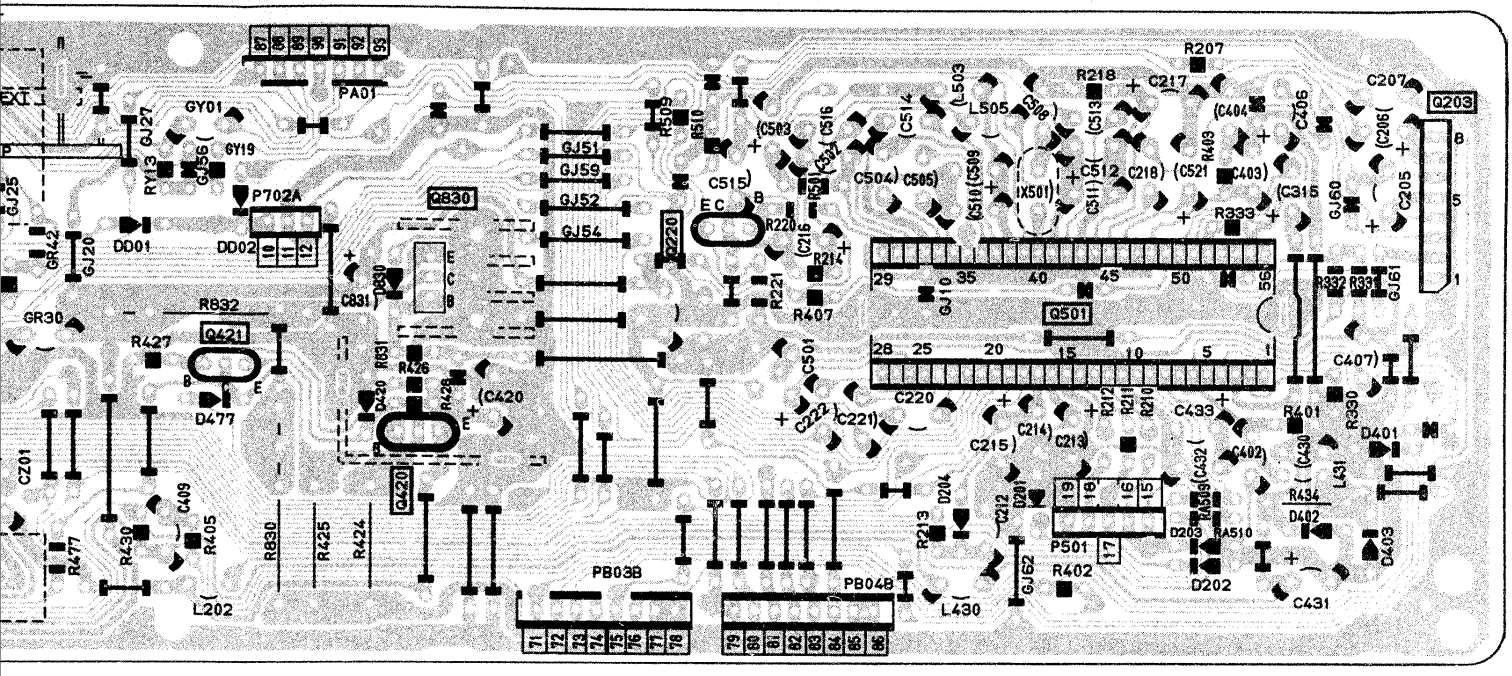
TEXT BOARD PB7045 (2975DE only)

BOTTOM (FOIL) SIDE



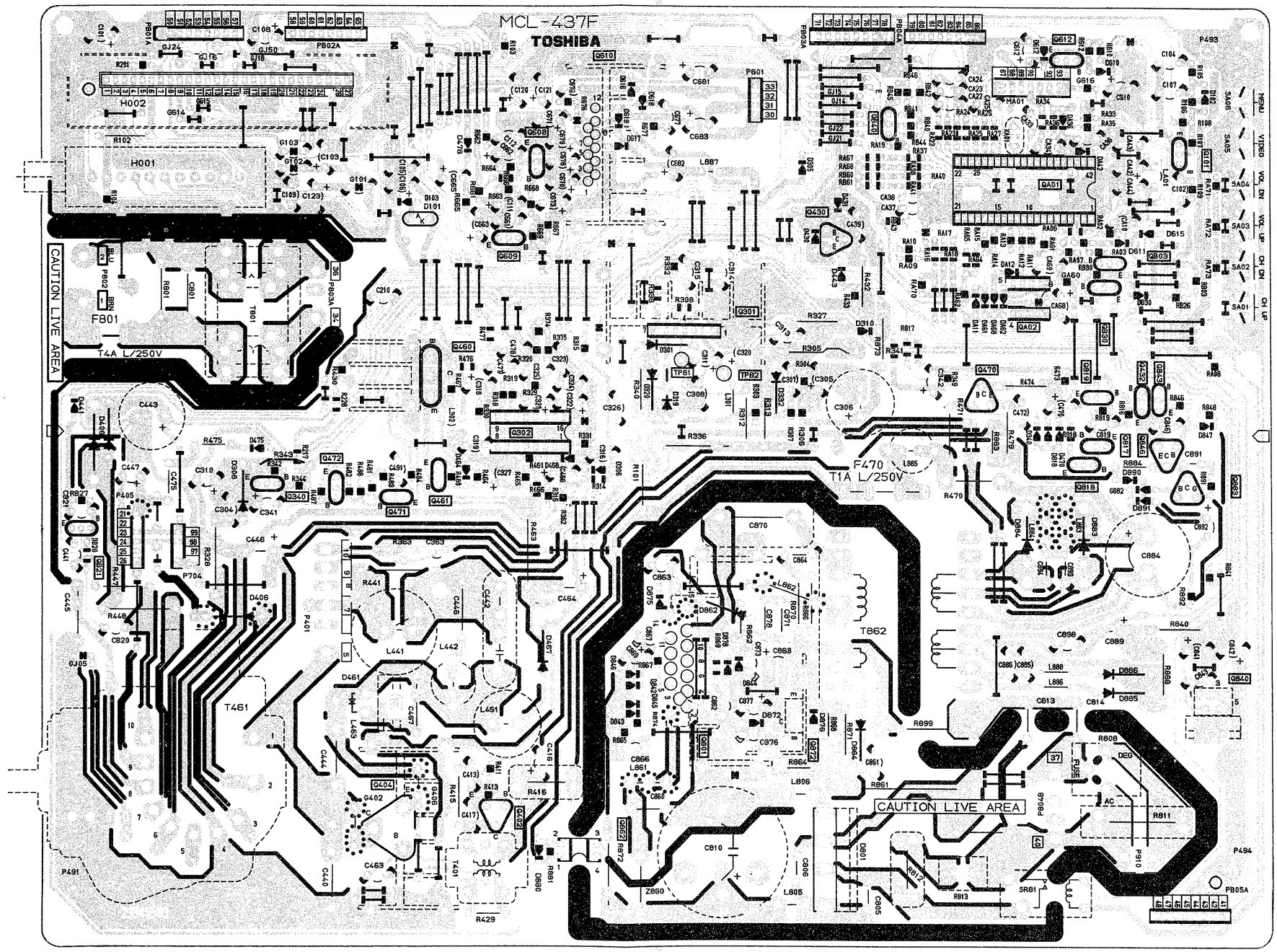
GNAL BOARD PB7786

BOTTOM (FOIL) SIDE



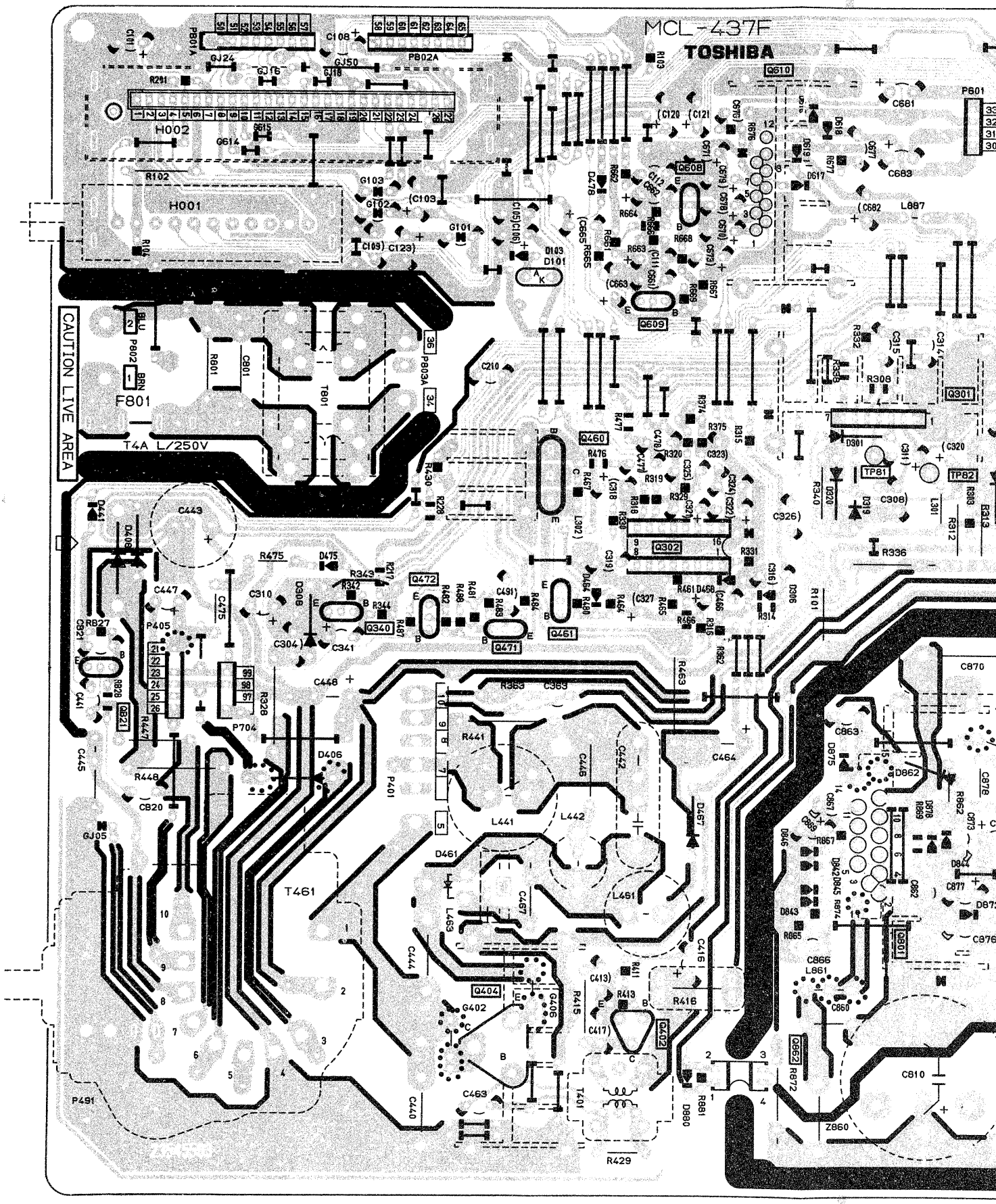
POWER BOARD PB7789

BOTTOM (FOIL) SIDE



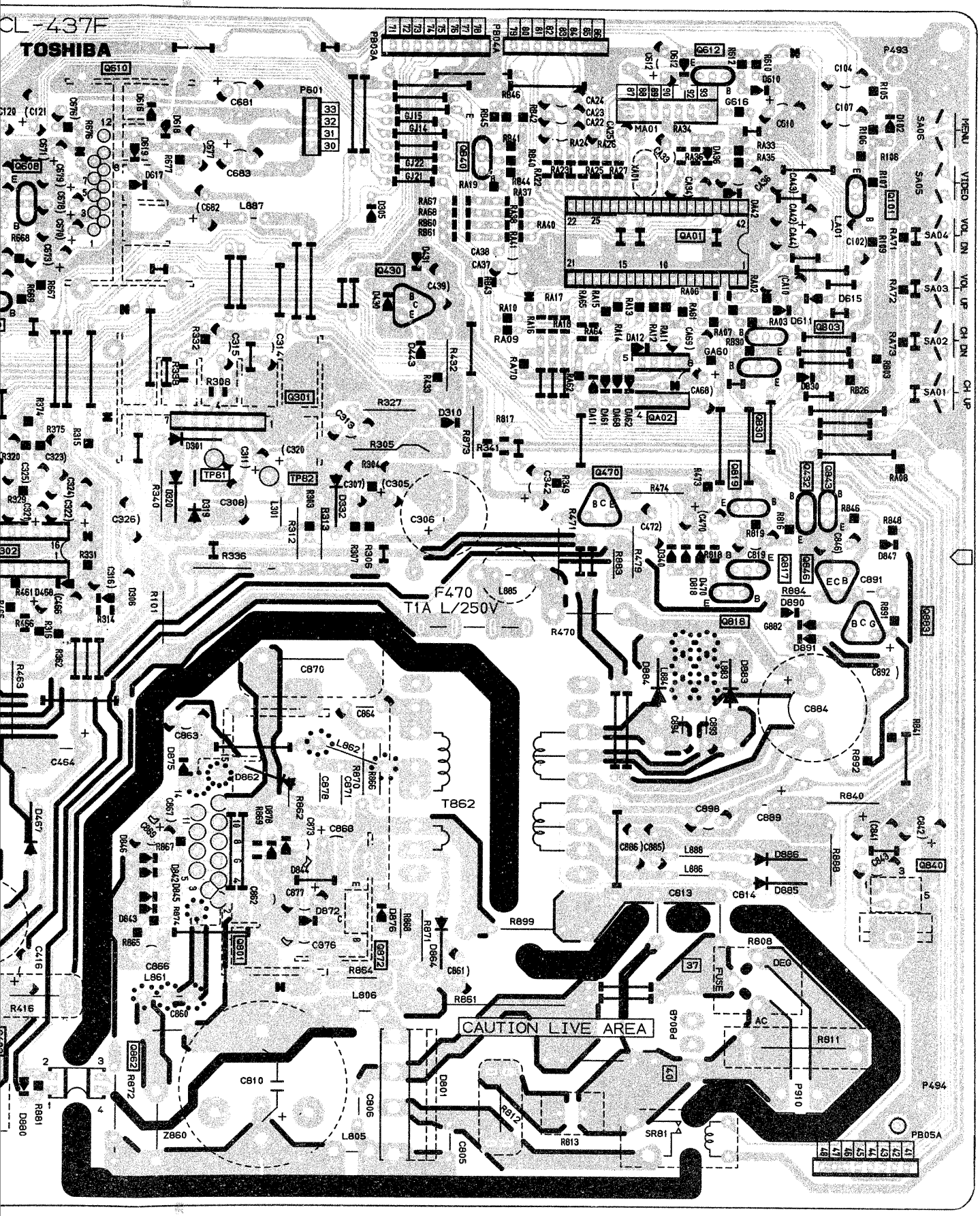
POWER BOARD PB7789

BOTTOM (FOIL) SIDE



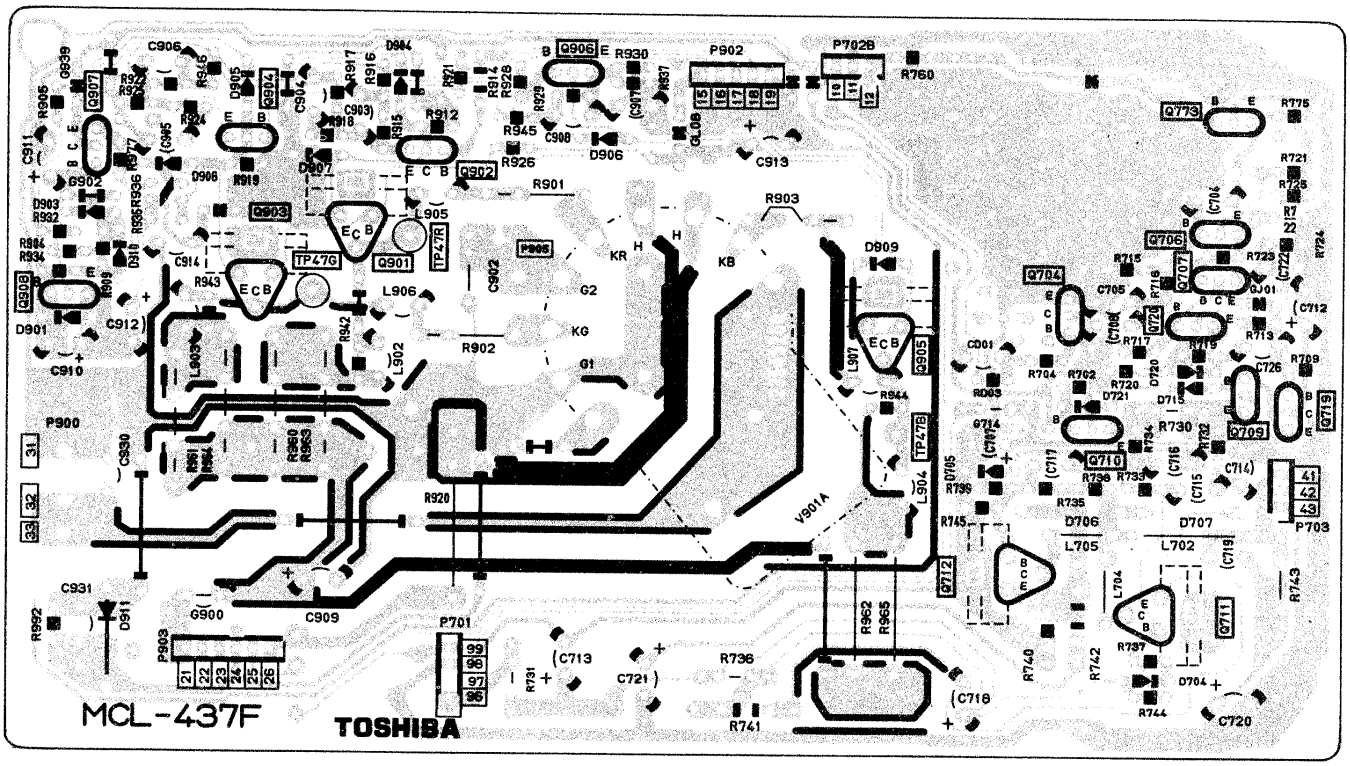
POWER BOARD PB7789

BOTTOM (FOIL) SIDE



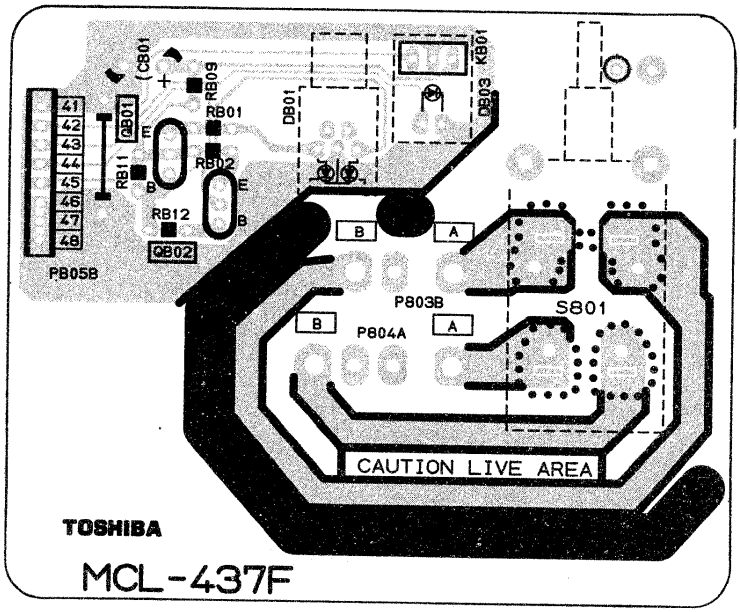
CRT DRIVE BOARD PB7601

BOTTOM (FOIL) SIDE



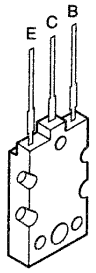
POWER SW BOARD PB7604

BOTTOM (FOIL) SIDE

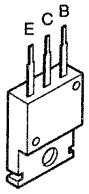


TERMINAL VIEW OF TRANSISTORS

① 2SD2253
(old)
2SC5243

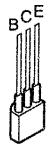


② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A

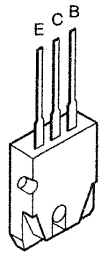


③ 2SC752GTM
2SC2482
2SC2655
2SC4721P

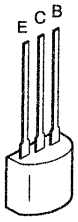
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



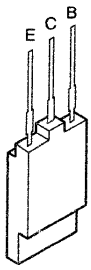
⑤ 2SA1788



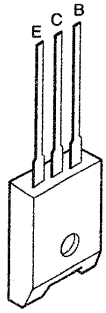
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SC5143



⑧ ON4409



MEMO

MEMO

SPECIFICATIONS

Rated voltage		AC 110 V – 240 V, 50/60 Hz
Power consumption (at AC 220 V, 50 Hz)		120 W
Dimensions		Width 808 mm × Height 584 mm × Depth 525 mm
Mass		44 kg
Picture tube (measured diagonally)		TYPE 29 (73 cm) Overall picture tube measured diagonally (68 cm) Viewable picture tube measured diagonally 110° deflection
Television system (Aerial input)	Channel coverage	**System** **Channel** **VHF** **UHF** **CATV** PAL B/G CCIR 2 – 12 21 – 69 X ~ Z+2, S1 ~ S41 PAL I UK — 21 – 69 — PAL D/K CHINA 1 – 12 13 – 57 Z–1 ~ Z–38 NTSC M US 2 – 13 14 – 69 A–6 ~ A–1, A ~ W, AA ~ ZZ, AAA, BBB NTSC M JAPAN 1 – 12 13 – 62 M1 ~ M10, S1 ~ S41
	Special RF signal	**Colour system** **Sound system** 4.43NTSC 5.5/6.0/6.5 MHz PAL 60Hz 5.5/6.0/6.5 MHz
Colour system (Video input)		PAL / 4.43NTSC / 3.58NTSC / 60 Hz PAL / 50 Hz 3.58NTSC
Sound output		5 W + 5 W
Speaker		2 pcs 60 × 120 mm
Input		VIDEO : 1V (p-p), 75 Ω AUDIO : 500 mV (rms) (54% modulation equivalent), more than 22 kΩ
Output		VIDEO : 1V (p-p), 75 Ω AUDIO : 500 mV (rms) (54% modulation), less than 2.2 kΩ
Accessories		Remote Controller × 1 Battery (R6, AA) × 2

Design and specifications are subject to change without notice.

SCHEMATIC DIAGRAM MODEL : 2975DE / 2975SH (1/2)

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

060-9717

OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with VTVM from point shown to chassis ground, line voltage 220 volts, colour bar signal. Voltages reading may vary ±20%.
2. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
3. Waveforms are taken using a standard colour bar signal.
4. Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best picture.

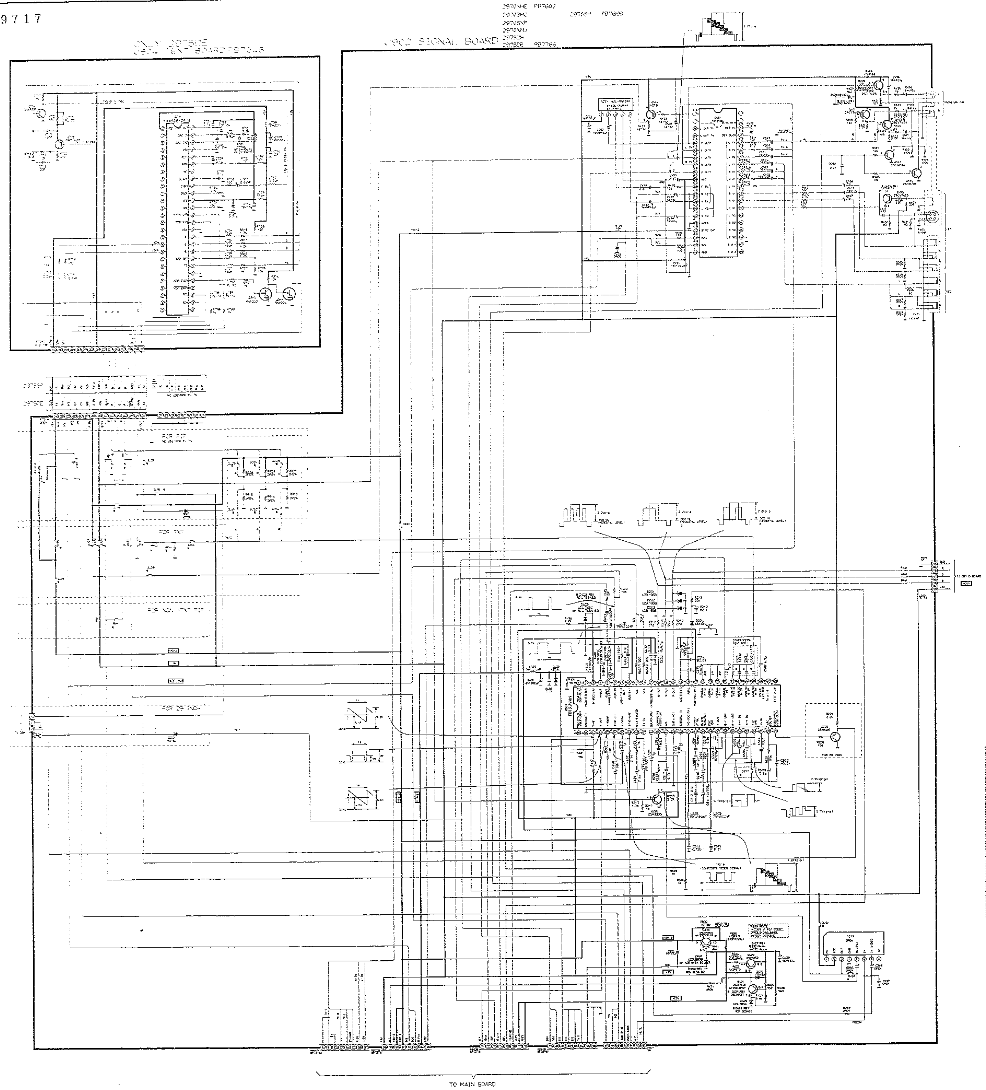
NOTES:

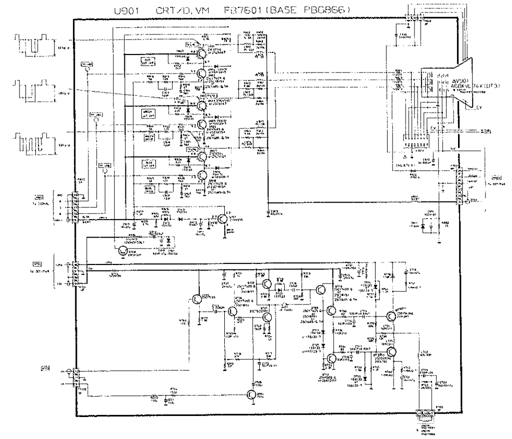
1. D.C. resistance value of a principal transformer is shown in this schematic diagram. These are measured for separated from the circuit.
2. The circuits are subject to change without notice.
3. ⬬ : Solder links.

EXPRESSION

VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000
2. Unless other wise noted in schematic, all capacitor values less than 1 are expressed in μF and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in μH, and the values less than 1 in H.





	2970XHE 2970MH	2975SP	2975XHC	2975DE	2975SH	2970XMJ
GJ11	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ16	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ17	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ18	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ20	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ21	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ22	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ23	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ24	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ25	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ26	OPEN	SHORT	OPEN	SHORT	OPEN	
RR27	OPEN	1.8K	OPEN	OPEN	OPEN	
RR28	OPEN	1.6K	OPEN	OPEN	OPEN	
RR29	OPEN	1.6K	OPEN	OPEN	OPEN	
RR13	OPEN	OPEN	OPEN	120	OPEN	
RR14	OPEN	OPEN	OPEN	120	OPEN	
RR15	OPEN	OPEN	OPEN	120	OPEN	
GJ27	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ29	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ30	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ31	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ41	SHORT	OPEN	SHORT	OPEN	OPEN	
GJ51	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ52	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ54	OPEN	SHORT	OPEN	SHORT	OPEN	

	2970XHE 2970MH	2975SP	2975XHC	2975DE	2975SH	2970XMJ
GJ55	OPEN	SHORT	OPEN	SHORT	OPEN	
C220	OPEN	0.1	OPEN	104D	OPEN	
C221	OPEN	0.1	OPEN	104D	OPEN	
C222	OPEN	0.1	OPEN	104D	OPEN	
RV22	OPEN	100	OPEN	OPEN	OPEN	
RV23	OPEN	1K	OPEN	OPEN	OPEN	
QV14	OPEN	[illegible]	OPEN	OPEN	OPEN	
CV35	OPEN	0.01	OPEN	OPEN	OPEN	
QV01	TA1219N	TA1216N	TA1215N	TA1215N	TA1219N	
Q501	TB1227AN	TB1230N	TB1230N	TB1230N	TB1230N	
GJ60	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ61	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ62	OPEN	OPEN	OPEN	OPEN	OPEN	
GV01	SHORT	SHORT	SHORT	SHORT	SHORT	
GV02	SHORT	SHORT	SHORT	SHORT	SHORT	
GY01	OPEN	330	SHORT	OPEN	OPEN	
GY19	OPEN	1K	OPEN	OPEN	OPEN	
GR42	OPEN	SHORT	OPEN	OPEN	OPEN	
RY13	OPEN	10K	OPEN	OPEN	OPEN	
RR11	SHORT	OPEN	SHORT	SHORT	SHORT	

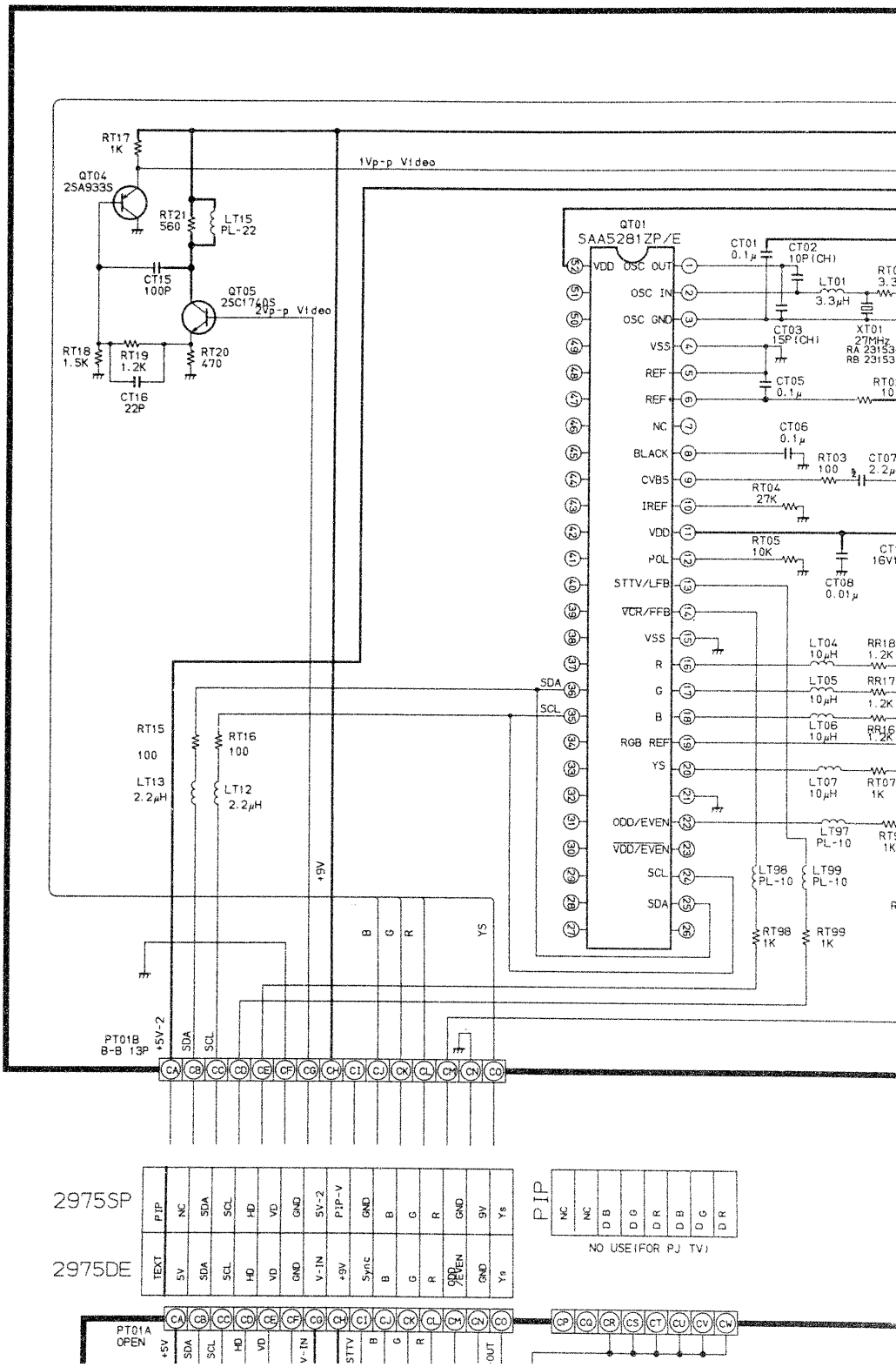
G101
G102
G103
G402
G406
G472
G614
G615
G616
GA60
GJ05
GJ12
GJ14
GJ15
GJ50

SCHEMATIC DIAGRAM MODEL : 2975DE / 2975SH

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate co
ponents which have special characteristics important for safety and should be replaced only with types iden
those in the original circuit or specified in the parts list. The mounting position of replacements is to be iden
with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE
3. Do not degrade the safety of the receiver through improper servicing.

060-9717

ONLY 2975DE
U904 TEXT BOARD PB7



2975SH (1/2)

arts list designate com-
d only with types identical to
ements is to be identical
T SAFETY NOTICE on page

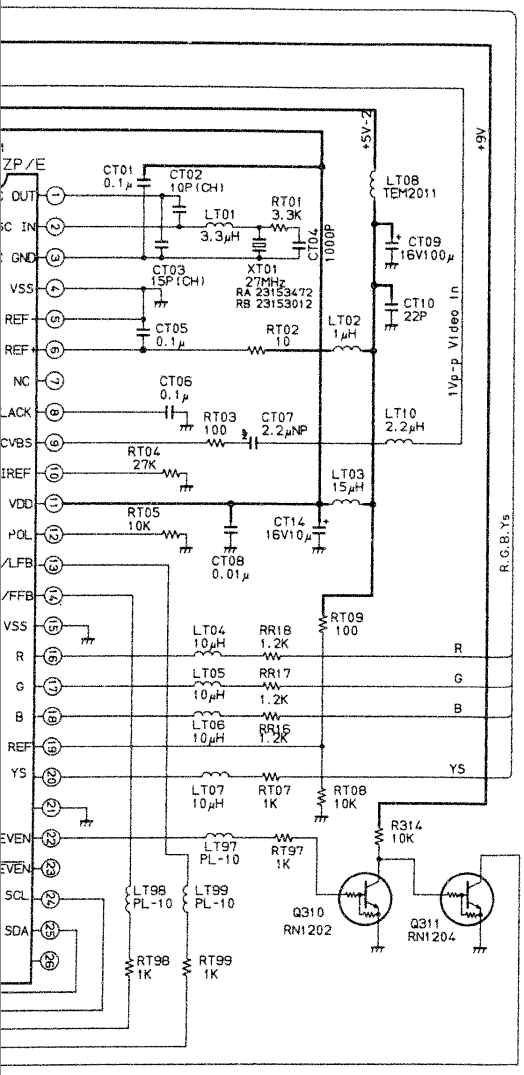
OBSERVATION OF VOLTAGES AND WAVEFORMS

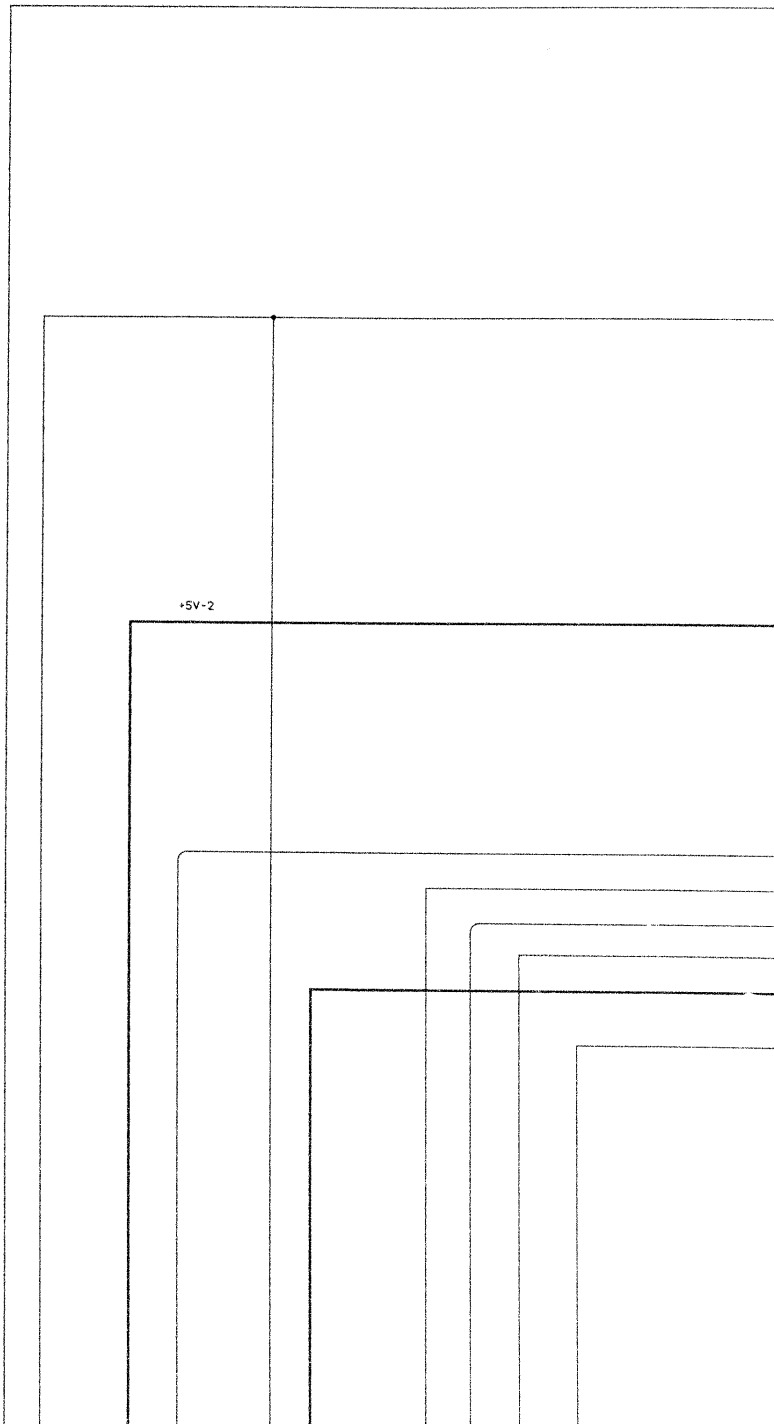
1. Voltages read with VTVM from point shown to chassis ground, lin
   volts, colour bar signal. Voltages reading may vary ±20%.
2. All waveforms are taken using a wide band oscilloscope and a low ca
3. Waveforms are taken using a standard colour bar signal.
4. Make sure that CONTRAST and COLOUR controls are in mid
   BRIGHTNESS control is almost in maximum position. Set other cor
   picture.

2970XHE PB76
2970SHC
2970SXP
2970XMJ
2975DH
2975DE PB77

975DE
KT BOARD PB7045

U902 SIGNAL BOARD



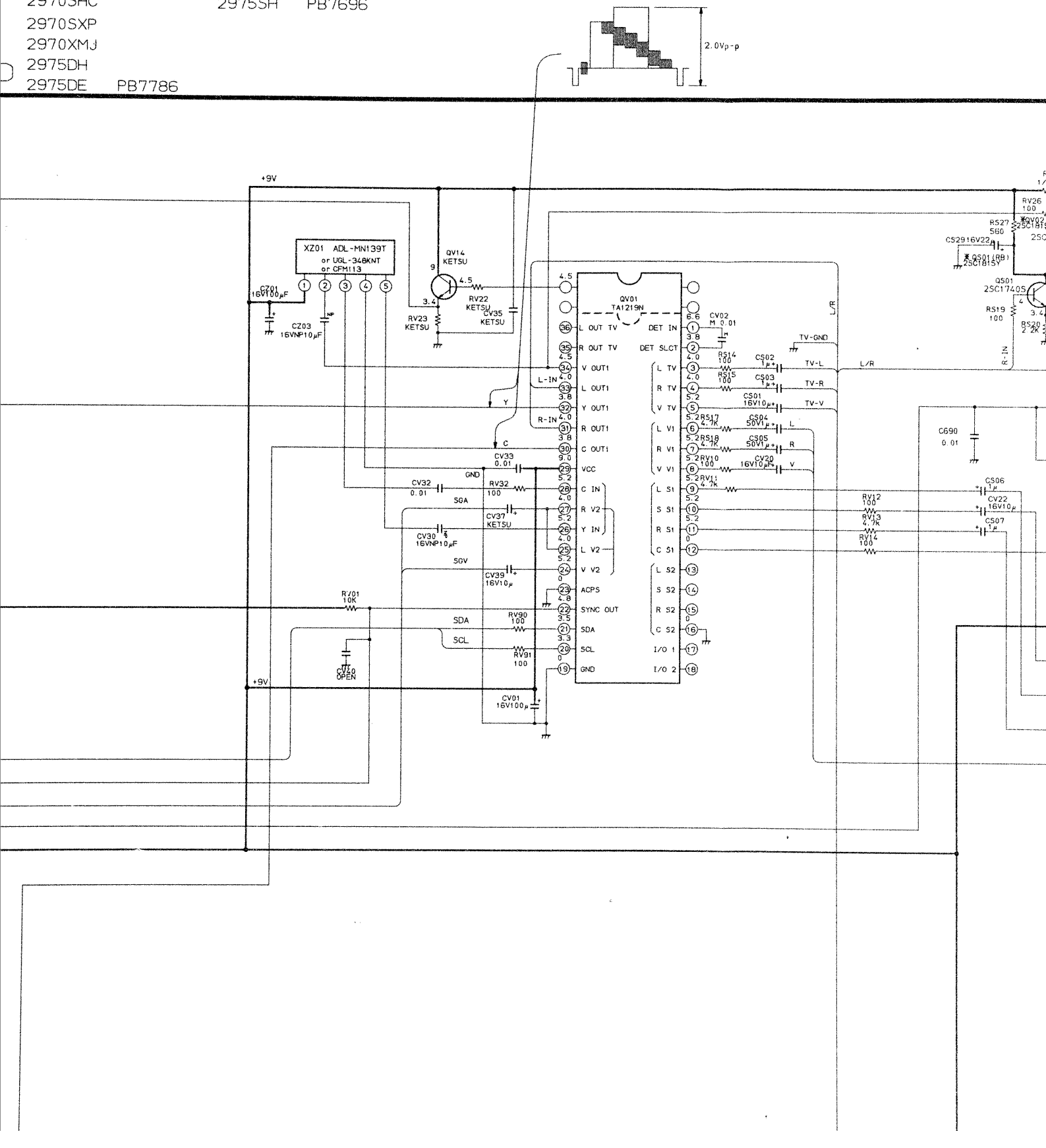


assis ground, line voltage 220
y ±20%.
cope and a low capacity probe.
signal.
ols are in mid position and
on. Set other controls for best

2970XHE PB7602
2970SHC 2975SH PB7696
2970SXP
2970XMJ
2975DH
2975DE PB7786

NOTES:

1. D.C. resistance value of a principal transformer is sh
gram. These are measured for separated from the circu
2. The circuits are subject to change without notice.
3. ● : Solder links.

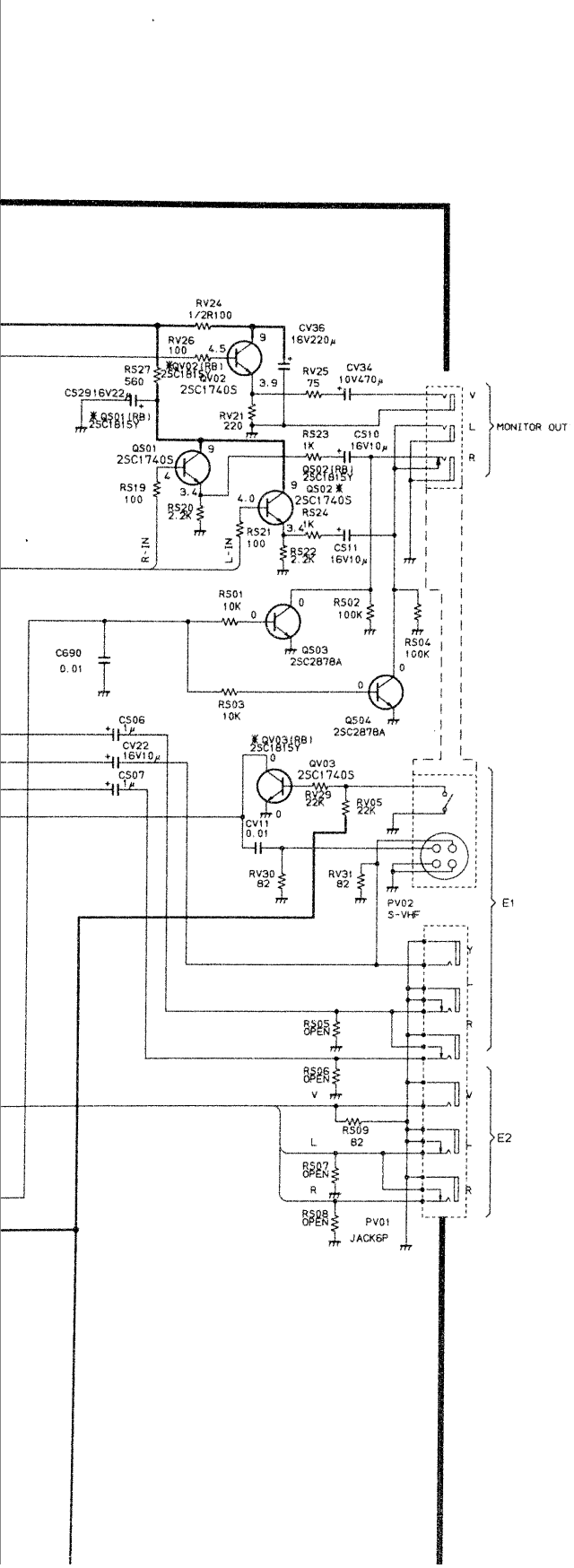


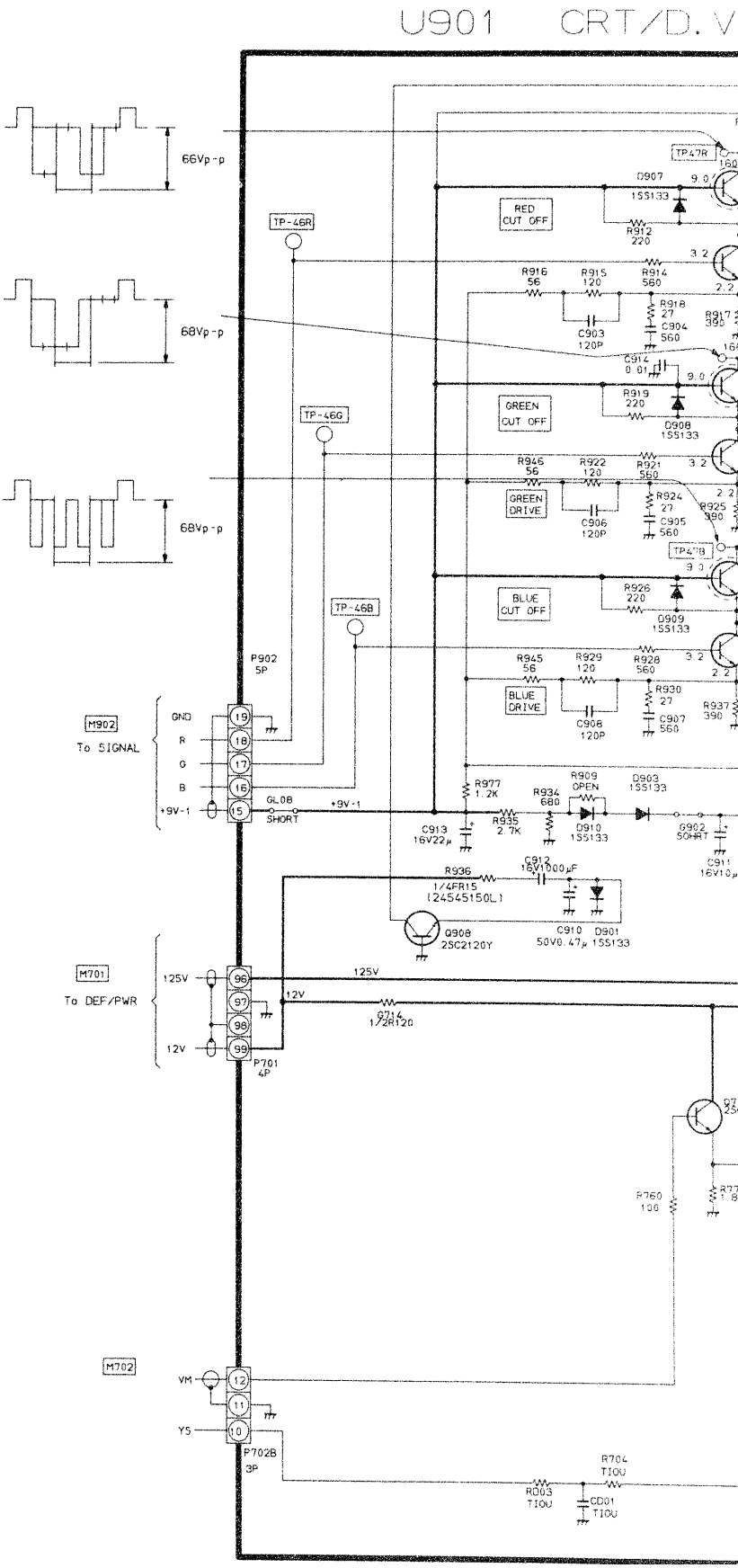
nsformer is shown in this schematic dia-
d from the circuit.
ut notice.

EXPRESSION

VALUE OF RESISTOR, CAPACITOR and I

1. Resistance is shown in ohm, k=1,000, M=1,0
2. Unless other wise noted in schematic, all ca
   sed in μF and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all ind
   sed in μH, and the values less than 1 in H.





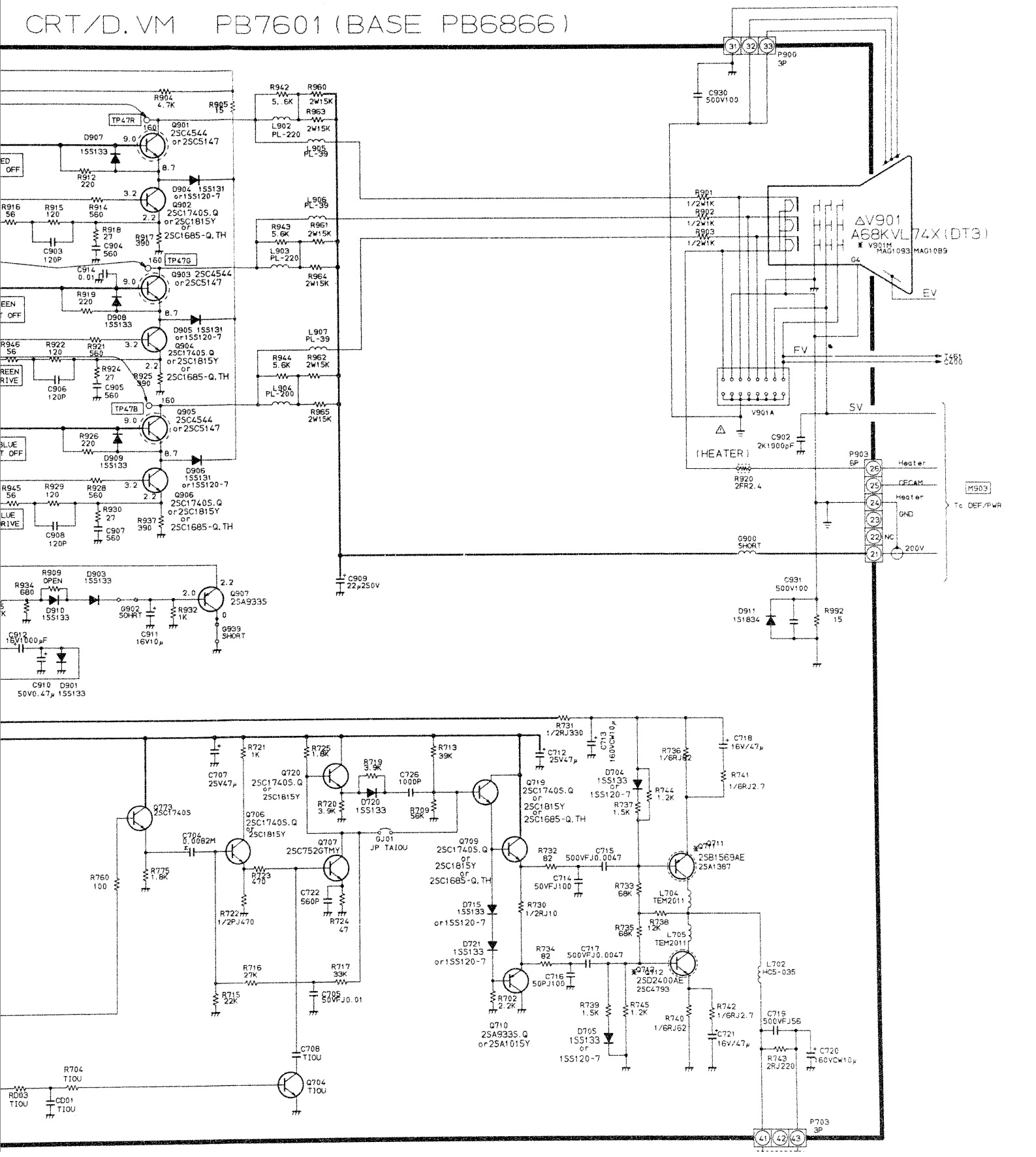
ACITOR and INDUCTOR

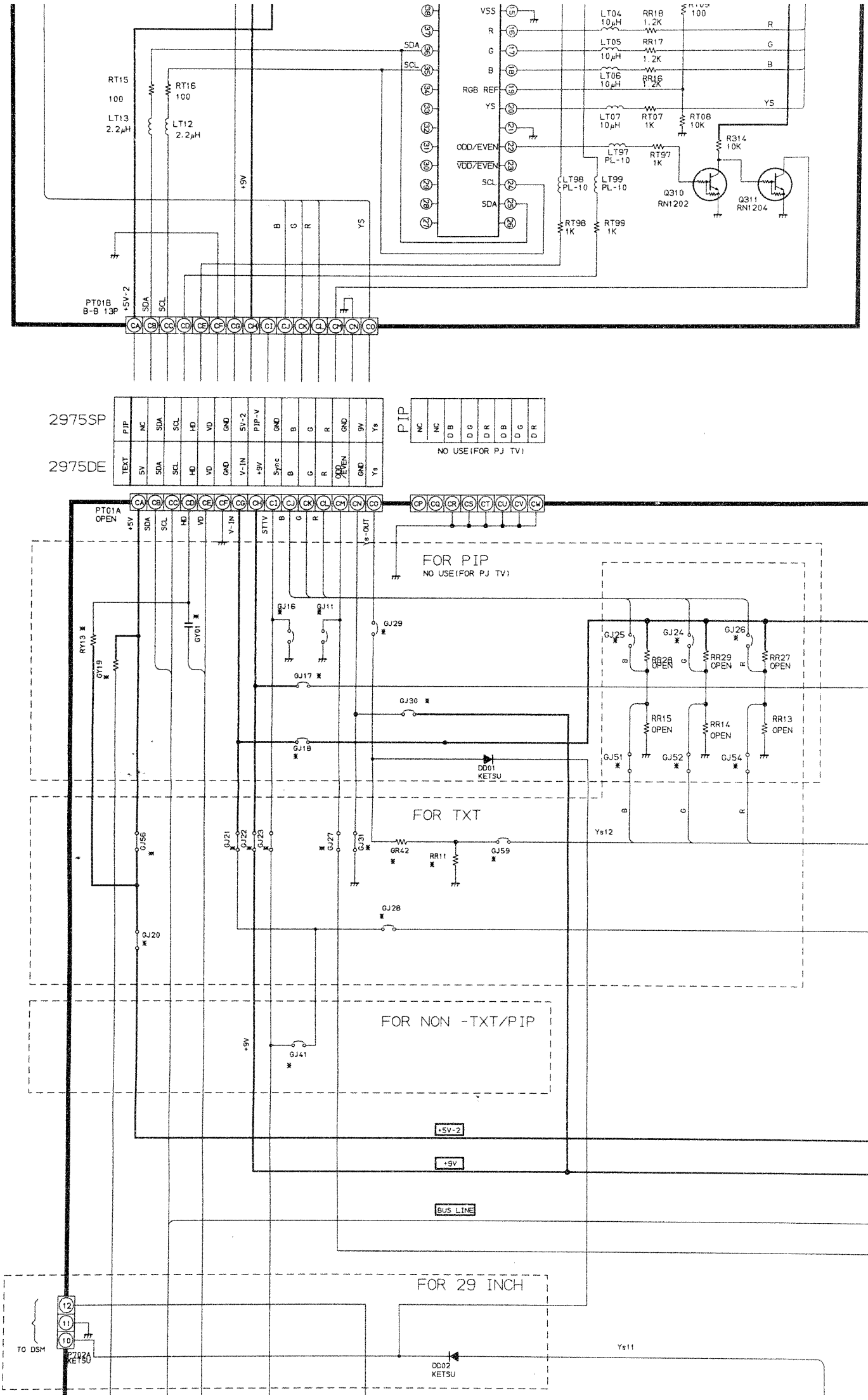
k=1,000, M=1,000,000

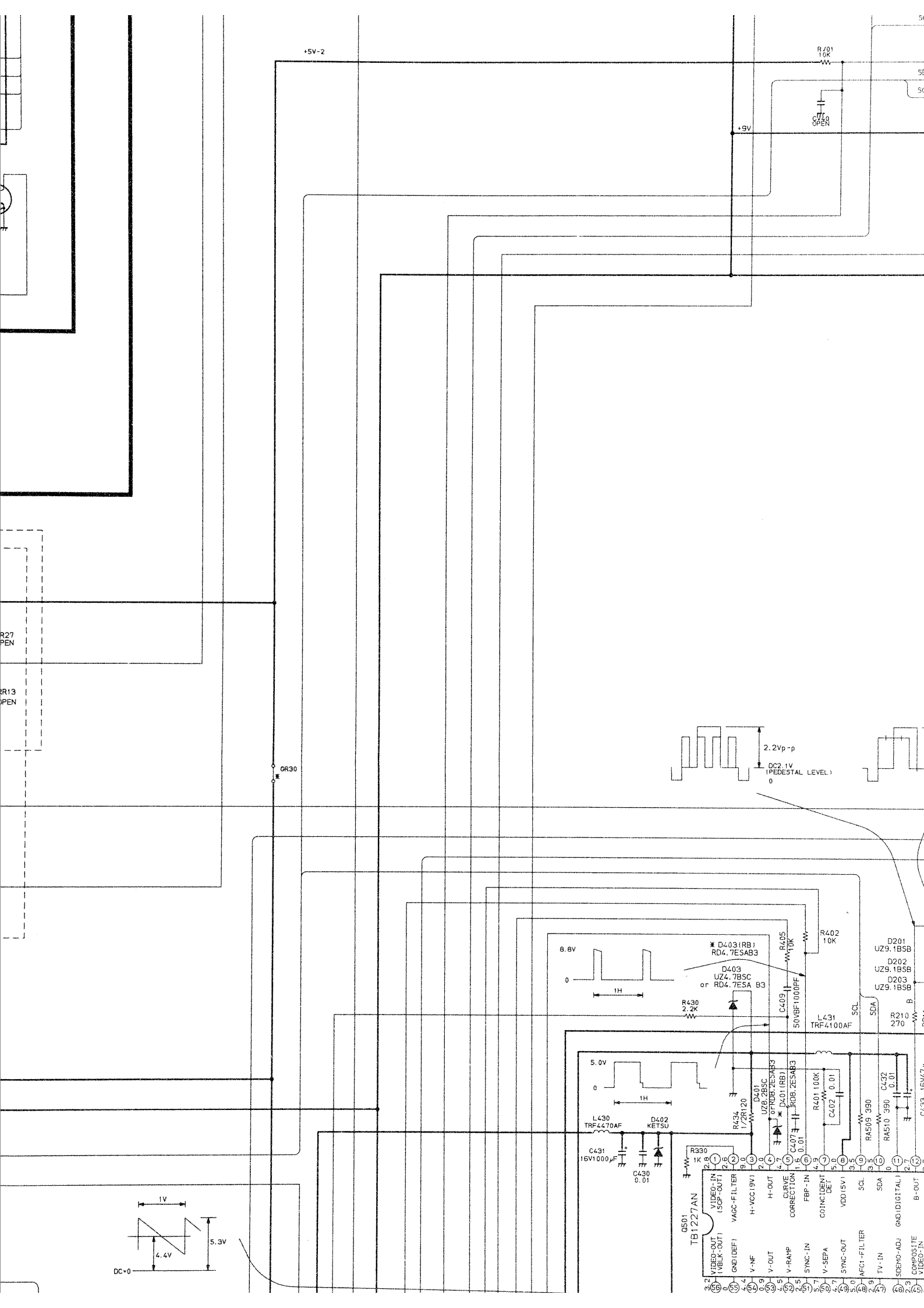
schematic, all capacitor values less than 1 are expres-
e than 1 in pF.

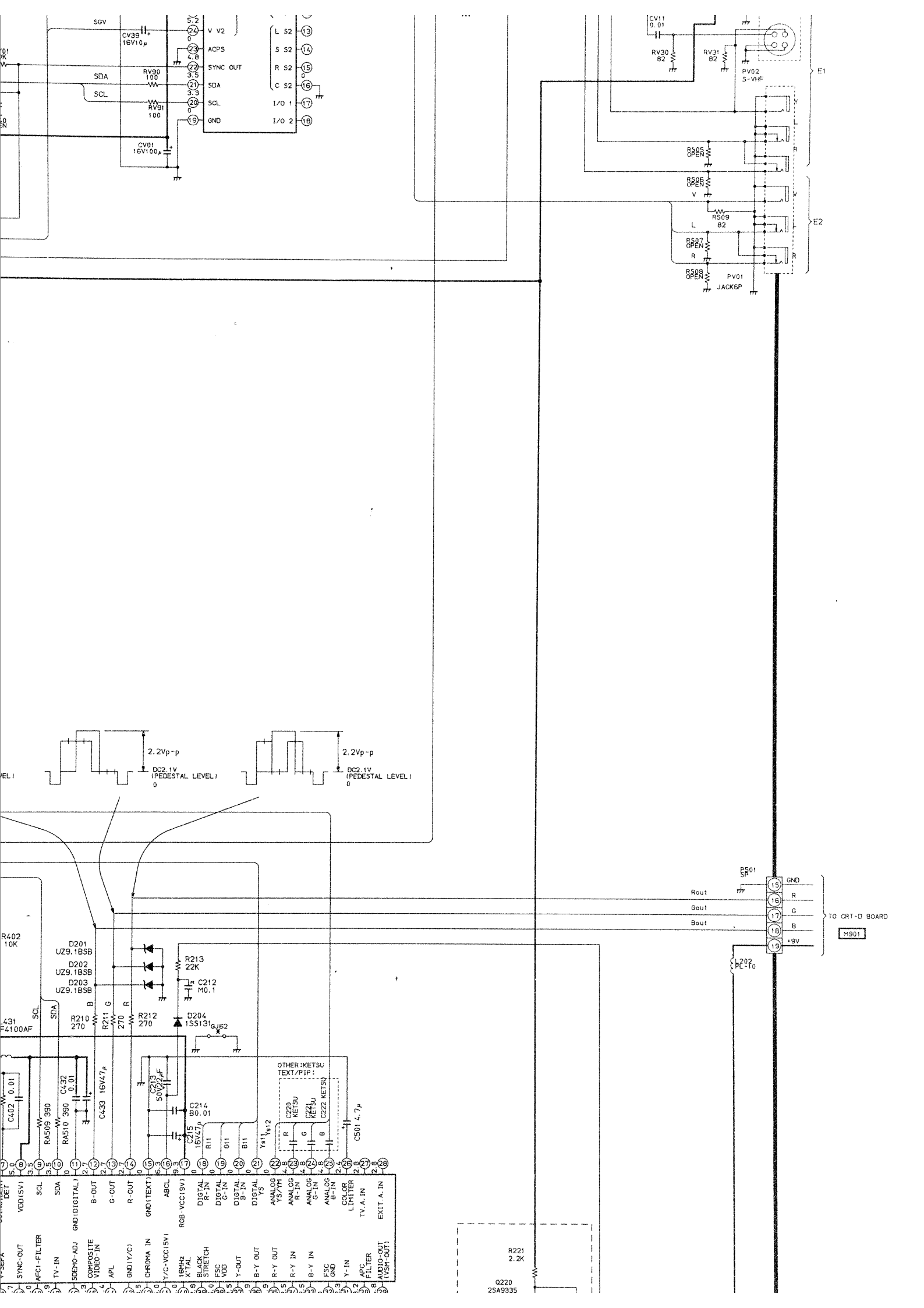
chematic, all inductor values more than 1 are expres-
s than 1 in H.

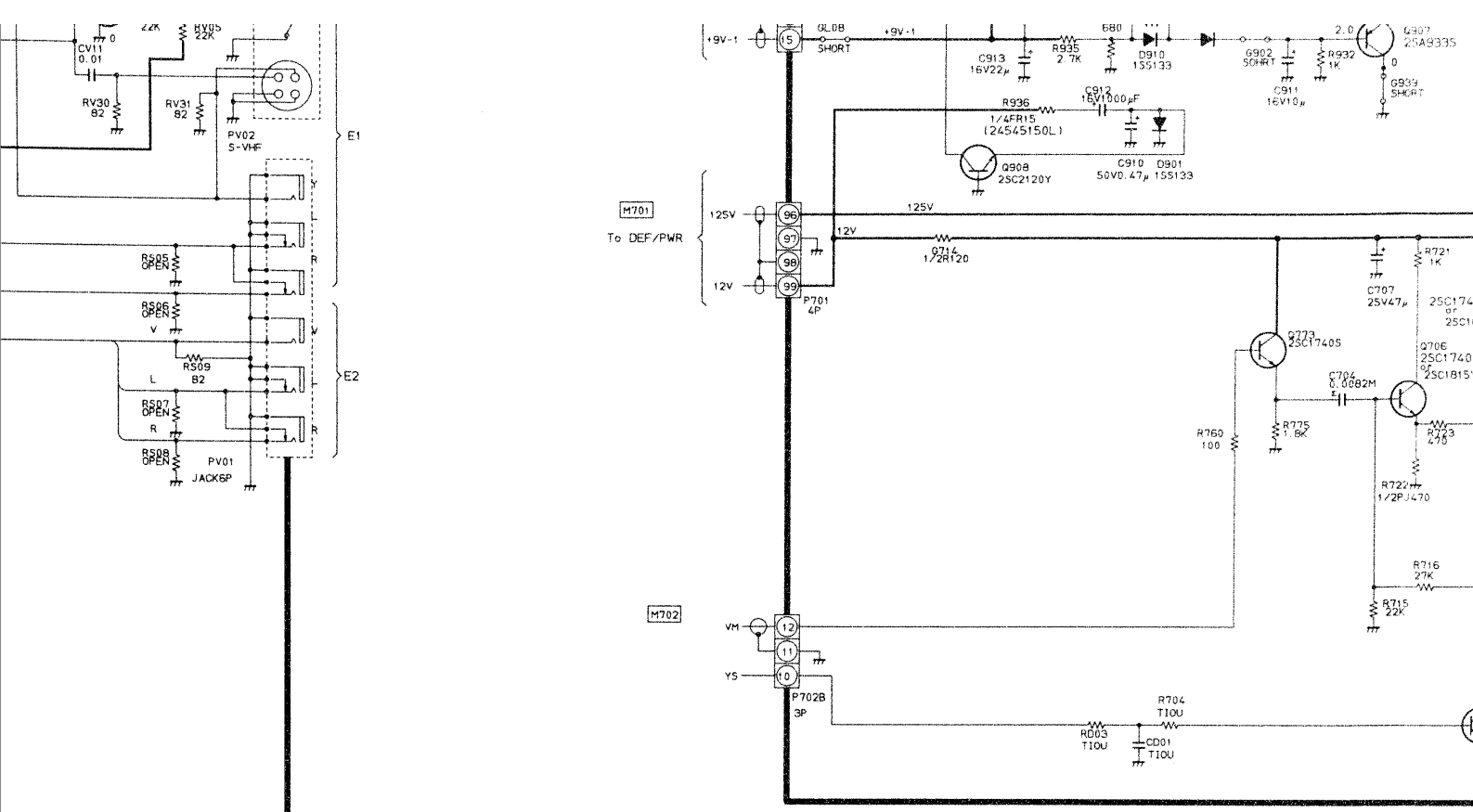
CRT/D.VM PB7601 (BASE PB6866)

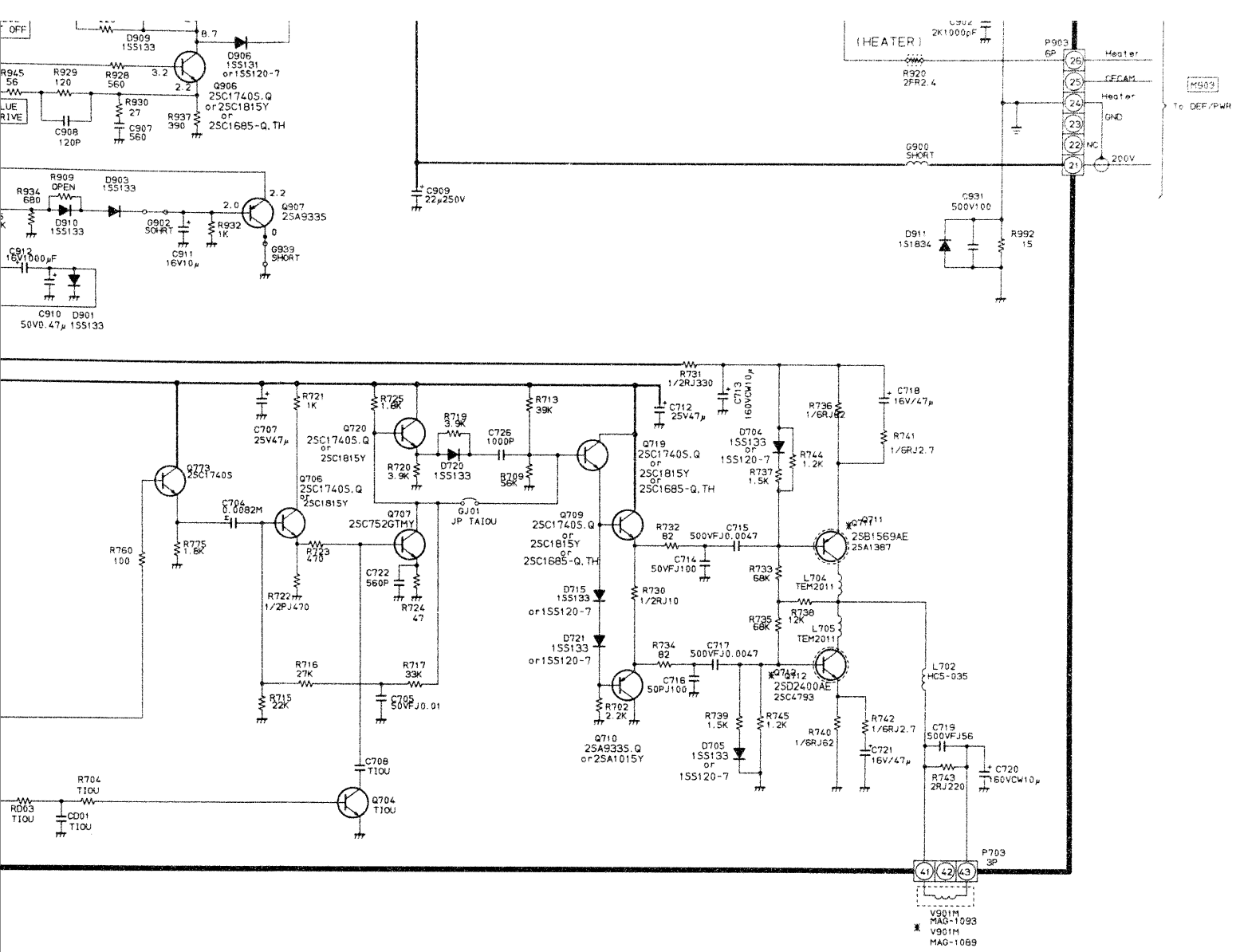


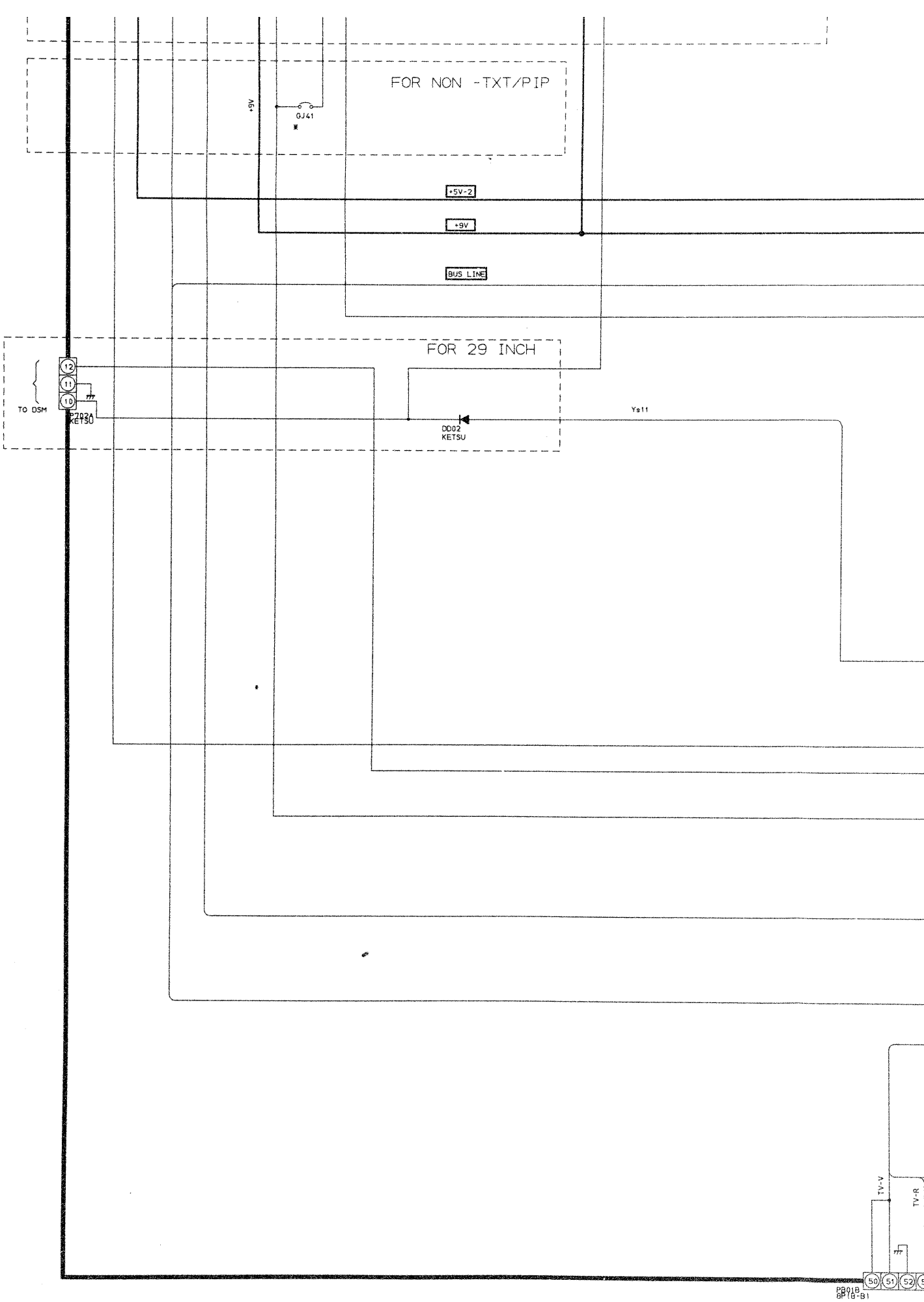

RT15
100
LT13
2.2μH
RT16
100
LT12
2.2μH
+9V
SDA
SCL
VSS
R
G
B
RGB REF
YS
ODD/EVEN
VDD/EVEN
LT04
10μH
RR18
1.2K
LT05
10μH
RR17
1.2K
LT06
10μH
RR16
1.2K
LT07
10μH
RT07
1K
RT08
10K
R314
10K
LT97
PL-10
RT97
1K
LT98
PL-10
LT99
PL-10
RT98
1K
RT99
1K
Q310
RN1202
Q311
RN1204
PT01B
B-B 13P
+5V-2
CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO
2975SP
PIP
NC SDA SCL HD VD GND 5V-2 PIP-V GND B G R GND 9V Ys
2975DE
TEXT
5V SDA SCL HD VD GND V-IN +9V Sync B G R ODD/EVEN GND Ys
PIP
NC NC DB DG DR DB DG DR
NO USE(FOR PJ TV)
PT01A
OPEN
CP CQ CR CS CT CU CV CW
STTV
Ys-OUT
FOR PIP
NO USE(FOR PJ TV)
GJ16
GJ11
GJ29
GJ17
GJ30
GJ18
GJ25
GJ24
GJ26
RR28 OPEN
RR29 OPEN
RR27 OPEN
RR15 OPEN
RR14 OPEN
RR13 OPEN
GJ51
GJ52
GJ54
DD01
KETSU
FOR TXT
Ys12
GJ21
GJ22
GJ23
GJ27
GJ31
GR42
RR11
GJ59
GJ28
GJ56
GJ20
FOR NON -TXT/PIP
GJ41
RY13
GY19
GY01
+5V-2
+9V
BUS LINE
FOR 29 INCH
TO DSM
P7024
KETSU
DD02
KETSU
Ys11

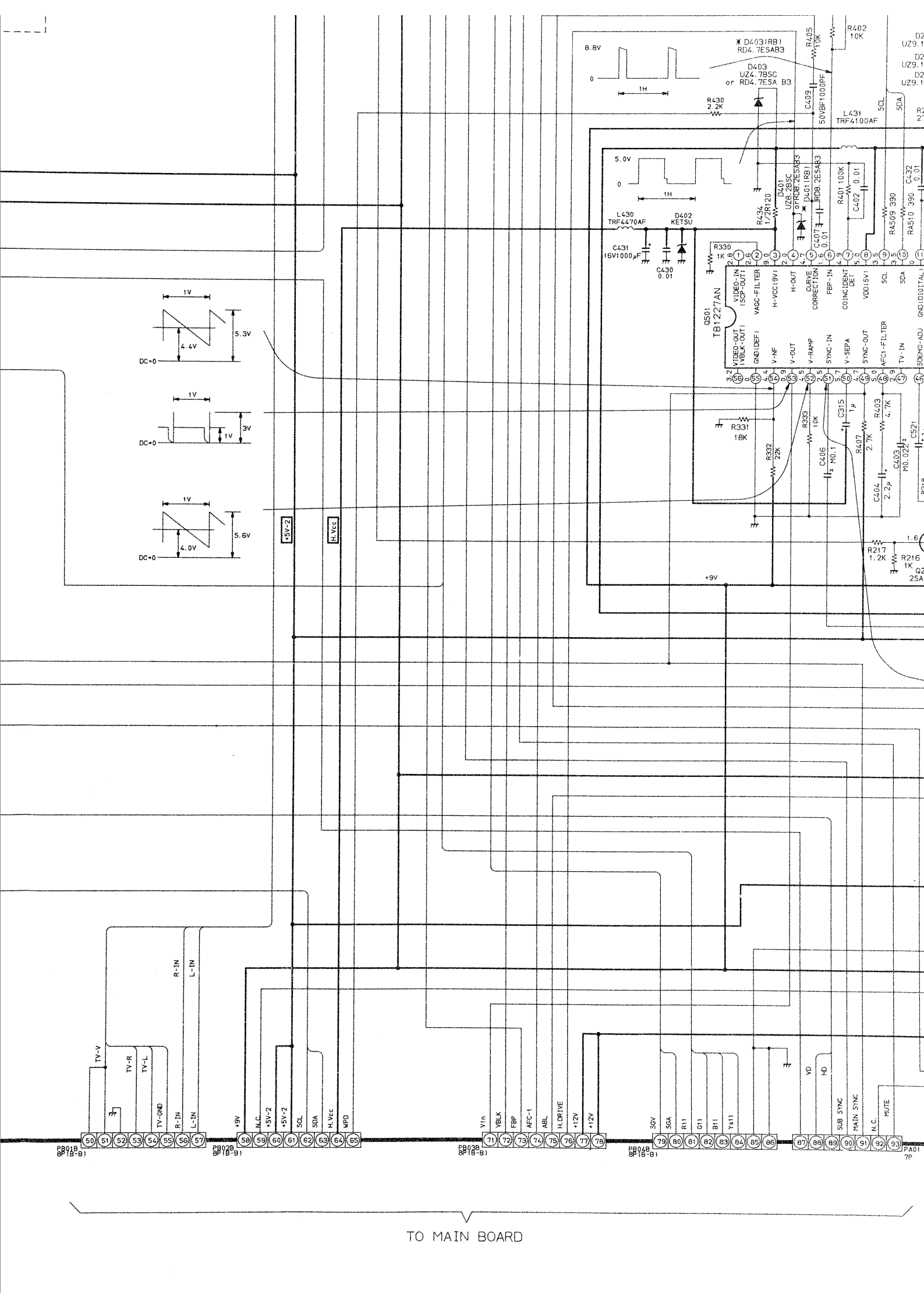

+5V-2
R701
10K
C704
OPEN
+9V
R27
PEN
R13
PEN
GR30
2.2Vp-p
DC2.1V
(PEDESTAL LEVEL)
0
8.6V
0
1H
* D403(RB)
RD4.7ESAB3
D403
UZ4.7BSC
or RD4.7ESA B3
R405
10K
R402
10K
D201
UZ9.1BSB
D202
UZ9.1BSB
D203
UZ9.1BSB
C409
50VBF1000PF
R430
2.2K
L431
TRF4100AF
SCL
SDA
R210
270
5.0V
0
1H
L430
TRF4470AF
D402
KETSU
C431
16V1000μF
C430
0.01
R434
1/2R120
D401
UZ8.2BSC
or RD8.2ESAB3
* D401(RB)
RD8.2ESAB3
C407
0.01
R401 100K
C402
0.01
RA509 390
RA510 390
C432
0.01
R330
1K
Q501
TB1227AN
VIDEO-IN
(SGP-OUT)
VAGC-FILTER
H-VCC(9V)
H-OUT
CURVE
CORRECTION
FBP-IN
COINCIDENT
DET
VDD(5V)
SCL
SDA
GND(DIGITAL)
B-OUT
VIDEO-OUT
(VBLK-OUT)
GND(DEF)
V-NF
V-OUT
V-RAMP
SYNC-IN
V-SEPA
SYNC-OUT
AFC1-FILTER
TV-IN
SDEMO-ADJ
COMPOSITE
VIDEO-IN
1V
4.4V
5.3V
DC=0

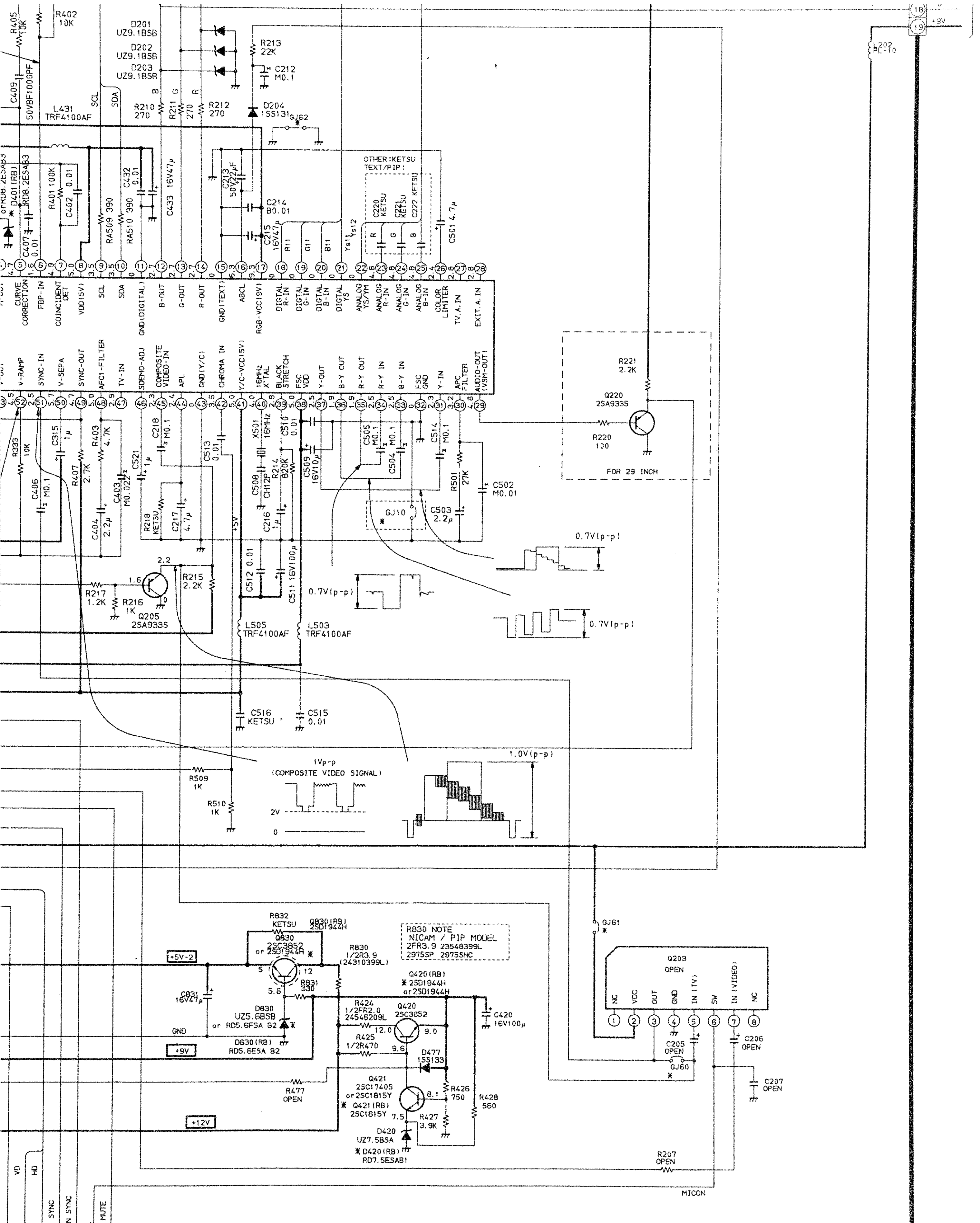

5GV
CV39 16V10μ
SDA
SCL
RV90 100
RV91 100
CV01 16V100μ
V V2
ACPS
SYNC OUT
SDA
SCL
GND
I/O 1
I/O 2
L S2
S S2
R S2
C S2
CV11 0.01
RV30 82
RV31 82
PV02 S-VHF
E1
RS05 OPEN
RS06 OPEN
RS09 82
RS07 OPEN
RS08 OPEN
PV01 JACK6P
E2
2.2Vp-p
DC2.1V (PEDESTAL LEVEL)
P501 SP
Rout
Gout
Bout
GND
R
G
B
+9V
TO CRT-D BOARD
M901
L202 PC-TO
D201 UZ9.1BSB
D202 UZ9.1BSB
D203 UZ9.1BSB
R213 22K
C212 M0.1
R210 270
R211 270
R212 270
D204 1SS131
OTHER:KETSU TEXT/PIP:
C220 KETSU
C221 KETSU
C222 KETSU
C213 50V22μF
C214 B0.01
C215 16V47μ
C432 0.01
C433 16V47μ
C402 0.01
RA509 390
RA510 390
C501 4.7μ
R221 2.2K
Q220 2SA9335
SYNC-SEPA DET
VDD(5V)
SCL
SDA
GND(DIGITAL)
B-OUT
G-OUT
R-OUT
GND(TEXT)
ABCL
RGB-VCC(9V)
DIGITAL R-IN
DIGITAL G-IN
DIGITAL B-IN
DIGITAL YS
ANALOG YS/YM
ANALOG R-IN
ANALOG G-IN
ANALOG B-IN
COLOR LIMITER
TV.A.IN
EXIT A.IN
SYNC-OUT
AFC1-FILTER
TV-IN
SDEHO-ADJ
COMPOSITE VIDEO-IN
APL
GND(Y/C)
CHROMA IN
Y/C-VCC(5V)
18MHz X'TAL
BLACK STRETCH
FSC VDD
Y-OUT
B-Y OUT
R-Y OUT
R-Y IN
B-Y IN
FSC GND
Y-IN
APC FILTER
AUDIO-OUT (VSM-OUT)


CV11 0.01
RV30 82
RV31 82
PV02 S-VHF
E1
RS05 OPEN
RS06 OPEN
V
RS09 82
L
E2
RS07 OPEN
R
RS08 OPEN
PV01 JACK6P
+9V-1
GLDB SHORT
C913 16V22μ
R935 2.7K
680
D910 1SS133
G902 SOHRT
C911 16V10μ
R932 1K
2.0
Q907 2SA933S
G939 SHORT
R936 1/4FR15 (24545150L)
C912 16V1000μF
Q908 2SC2120Y
C910 50V0.47μ
D901 1SS133
M701
To DEF/PWR
125V
12V
R714 1/2R120
P701 4P
C707 25V47μ
R721 1K
Q773 2SC1740S
Q706 2SC1740 or 2SC1815
C704 0.0082M
R775 1.8K
R760 100
R723 470
R722 1/2PJ470
R716 27K
R715 22K
M702
VM
YS
P702B 3P
R704 TIOU
RD03 TIOU
CD01 TIOU
P501 SP
GND
Rout
R
Gout
G
Bout
B
+9V
TO CRT-D BOARD
M901
L202 PL-10


OFF
D909 1SS133
8.7
D906 1SS131 or1SS120-7
R945 56
R929 120
R928 560
3.2
2.2
Q906 2SC1740S.Q or2SC1815Y or 2SC1685-Q.TH
R930 27
C908 120P
C907 560
R937 390
R909 OPEN
D903 1SS133
R934 680
D910 1SS133
G902 SHORT
R932 1K
2.0
2.2
Q907 2SA933S
0
G939 SHORT
C913 16V1000μF
C910 50V0.47μ
D901 1SS133
C911 16V10μ
C909 22μ250V
(HEATER)
C902 2K1000pF
R920 2FR2.4
P903 6P
26 Heater
25 CECAM
24 Heater
23 GND
22 NC
21 200V
M903
To DEF/PWR
G900 SHORT
C931 500V100
D911 1S1834
R992 15
R731 1/2RJ330
C712 25V47μ
C713 160VCW10μ
C718 16V/47μ
R736 1/6RJ62
R741 1/6RJ2.7
D704 1SS133 or 1SS120-7
R744 1.2K
R737 1.5K
C707 25V47μ
R721 1K
R725 1.8K
R719 3.9K
C726 1000P
R713 39K
Q720 2SC1740S.Q or 2SC1815Y
R720 3.9K
D720 1SS133
R709 56K
Q719 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
Q773 2SC1740S
Q706 2SC1740S.Q or 2SC1815Y
C704 0.0082M
R760 100
R775 1.6K
R722 1/2PJ470
Q707 2SC752GTMY
R723 470
C722 560P
R724 47
GJ01 JP TAIOU
Q709 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
R732 82
C715 500VFJ0.0047
C714 50VFJ100
R733 68K
L704 TEM2011
R730 1/2RJ10
D715 1SS133 or1SS120-7
R735 68K
R738 12K
L705 TEM2011
D721 1SS133 or1SS120-7
R734 82
C717 500VFJ0.0047
C716 50PJ100
R702 2.2K
Q710 2SA933S.Q or2SA1015Y
R739 1.5K
R745 1.2K
D705 1SS133 or 1SS120-7
R740 1/6RJ62
R742 1/6RJ2.7
C721 16V/47μ
C719 500VFJ56
R743 2RJ220
C720 160VCW10μ
L702 HC5-035
R716 27K
R717 33K
R715 22K
C705 50VFJ0.01
C708 TIOU
R704 TIOU
RD03 TIOU
CD01 TIOU
Q704 TIOU
P703 3P
41 42 43
V901M MAG-1093
V901M MAG-1069


FOR NON -TXT/PIP
+5V
GJ41
+5V-2
+9V
BUS LINE
FOR 29 INCH
12
11
10
TO DSM
P703A
KETSU
DD02
KETSU
Ys11
TV-V
TV-R
50
51
52
P801B
8P(B-B)


8.8V
0
1H
D403(RB)
RD4.7ESAB3
D403
UZ4.7BSC
or RD4.7ESA B3
R405
10K
R402
10K
C409
50VBF1000PF
L431
TRF4100AF
R430
2.2K
5.0V
0
1H
D401
UZ6.2BSC
or RD6.2ESAB3
D401(RB)
RD6.2ESAB3
R434
1/2R120
R401 100K
C402
0.01
C407
0.01
C432
0.01
R509 390
R510 390
L430
TRF4470AF
D402
KETSU
C431
16V1000μF
C430
0.01
R330
1K
Q501
TB1227AN
VIDEO-IN (SCP-OUT)
AGC-FILTER
H-VCC(9V)
H-OUT
CURVE CORRECTION
FBP-IN
COINCIDENT DET
VDD(5V)
SCL
SDA
GND(DIGITAL)
VIDEO-OUT (VBLK-OUT)
GND(DEF)
V-NF
V-OUT
V-RAMP
SYNC-IN
V-SEPA
SYNC-OUT
AFC1-FILTER
TV-IN
SDEMO-ADJ
R331
18K
R332
22K
R333
10K
C315
1μ
R407
2.7K
R403
4.7K
C406
M0.1
C403
M0.022
CS21
C404
2.2μ
R217
1.2K
R216
1K
+9V
1V
5.3V
4.4V
DC=0
1V
3V
1V
DC=0
1V
5.6V
4.0V
DC=0
+5V-2
H.Vcc
TV-V
TV-R
TV-L
TV-GND
R-IN
L-IN
+9V
N.C.
+5V-2
+5V-2
SCL
SDA
H.Vcc
WPD
Vin
VBLK
FBP
AFC-1
ABL
H.DRIVE
+12V
+12V
3GV
SGA
R11
G11
B11
Ys11
VD
HD
SUB SYNC
MAIN SYNC
N.C.
MUTE
PB01B 8P(B-B)
PB02B 8P(B-B)
PB03B 8P(B-B)
PB04B 8P(B-B)
PA01 7P
TO MAIN BOARD


R402
10K
R405
10K
C409
50VBF1000PF
L431
TRF4100AF
SCL
SDA
D201
UZ9.1BSB
D202
UZ9.1BSB
D203
UZ9.1BSB
R213
22K
C212
M0.1
R210
270
R211
270
R212
270
D204
1SS131
GJ62
OTHER:KETSU
TEXT/PIP:
C220
KETSU
C221
KETSU
C222 KETSU
C213
50V22μF
C214
B0.01
C215
16V47μ
C501 4.7μ
R401 100K
C402
C432
0.01
C433 16V47μ
RA509 390
RA510 390
D401(RB)
RD8.2ESAB3
C407
0.01
CURVE CORRECTION
FBP-IN
COINCIDENT DET
VDD(5V)
SCL
SDA
GND(DIGITAL)
B-OUT
G-OUT
R-OUT
GND(TEXT)
ABCL
RGB-VCC(9V)
DIGITAL R-IN
DIGITAL G-IN
DIGITAL B-IN
DIGITAL YS
ANALOG YS/YM
ANALOG R-IN
ANALOG G-IN
ANALOG B-IN
COLOR LIMITER
TV.A.IN
EXIT.A.IN
V-RAMP
SYNC-IN
V-SEPA
SYNC-OUT
AFC1-FILTER
TV-IN
SDEMO-ADJ
COMPOSITE VIDEO-IN
APL
GND(Y/C)
CHROMA IN
Y/C-VCC(5V)
16MHz X'TAL
BLACK STRETCH
FSC VDD
Y-OUT
B-Y OUT
R-Y OUT
R-Y IN
B-Y IN
FSC GND
Y-IN
APC FILTER
AUDIO-OUT (VSM-OUT)
R221
2.2K
Q220
2SA933S
R220
100
FOR 29 INCH
R333
10K
C315
1μ
R403
4.7K
C218
M0.1
C513
0.01
X501
16MHz
C510
0.01
C505
M0.1
C504
M0.1
C514
M0.1
C406
M0.1
R407
2.7K
C403
M0.022
C521
1μ
C404
2.2μ
R218
KETSU
C217
4.7μ
C508
CH12P
R214
820K
C509
16V10μ
C216
1μ
R501
27K
C502
M0.01
GJ10
C503
2.2μ
0.7V(p-p)
R217
1.2K
R216
1K
Q205
2SA933S
R215
2.2K
C512 0.01
C511 16V100μ
L505
TRF4100AF
L503
TRF4100AF
C516
KETSU
C515
0.01
R509
1K
R510
1K
1Vp-p
(COMPOSITE VIDEO SIGNAL)
2V
0
1.0V(p-p)
R832
KETSU
Q830(RB)
2SD1944H
Q830
2SC3852
or 2SD1944H
R830
1/2R3.9
(24310399L)
R830 NOTE
NICAM / PIP MODEL
2FR3.9 23548399L
2975SP 2975SHC
+5V-2
C831
16V47μ
R831
330
D830
UZ5.6BSB
or RD5.6FSA B2
D830(RB)
RD5.6ESA B2
GND
+9V
Q420(RB)
2SD1944H
or 2SD1944H
R424
1/2FR2.0
24546209L
Q420
2SC3852
R425
1/2R470
C420
16V100μ
D477
1SS133
R477
OPEN
Q421
2SC1740S
or 2SC1815Y
Q421(RB)
2SC1815Y
R426
750
R428
560
R427
3.9K
D420
UZ7.5BSA
D420(RB)
RD7.5ESAB1
+12V
GJ61
Q203
OPEN
NC
VCC
OUT
GND
IN (TV)
SW
IN (VIDEO)
NC
C205
OPEN
GJ60
C206
OPEN
C207
OPEN
R207
OPEN
MICON
VD
HD
SUB SYNC
MAIN SYNC
N.C.
MUTE
PA01
7P
L202
PL-10
+9V

B

+9V

M901

	2970XHE 2970MH	2975SP	2975XHC	2975DE	2975SH	2970XMJ
GJ11	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ16	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ17	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ18	OPEN	SHORT	OPEN	OPEN	OPEN	
GJ20	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ21	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ22	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ23	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ24	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ25	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ26	OPEN	SHORT	OPEN	SHORT	OPEN	
RR27	OPEN	1.8K	OPEN	OPEN	OPEN	
RR28	OPEN	1.8K	OPEN	OPEN	OPEN	
RR29	OPEN	1.8K	OPEN	OPEN	OPEN	
RR13	OPEN	OPEN	OPEN	120	OPEN	
RR14	OPEN	OPEN	OPEN	120	OPEN	
RR15	OPEN	OPEN	OPEN	120	OPEN	
GJ27	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ29	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ30	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ31	OPEN	OPEN	OPEN	SHORT	OPEN	
GJ41	SHORT	OPEN	SHORT	OPEN	OPEN	
GJ51	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ52	OPEN	SHORT	OPEN	SHORT	OPEN	
GJ54	OPEN	SHORT	OPEN	SHORT	OPEN	

	2970XHE 2970MH	2975SP	2975XHC	2975D
GJ56	OPEN	SHORT	OPEN	SHOR
C220	OPEN	0.1	OPEN	104D
C221	OPEN	0.1	OPEN	104D
C222	OPEN	0.1	OPEN	104D
RV22	OPEN	100	OPEN	OPEN
RV23	OPEN	1K	OPEN	OPEN
QV14	OPEN	2SC1740S	OPEN	OPEN
CV35	OPEN	0.01	OPEN	OPEN
QV01	TA1219N	TA1218N	TA1219N	TA1219
Q501	TB1227AN	TB1230N	TB1230N	TB1230
GJ60	SHORT	SHORT	SHORT	SHOR
GJ61	OPEN	OPEN	OPEN	OPEN
GJ62	OPEN	OPEN	OPEN	OPEN
GV01	SHORT	SHORT	SHORT	SHOR
GV02	SHORT	SHORT	SHORT	SHOR
GY01	OPEN	330	SHORT	OPEN
GY19	OPEN	1K	OPEN	OPEN
GR42	OPEN	SHORT	OPEN	OPEN
RY13	OPEN	10K	OPEN	OPEN
RR11	SHORT	OPEN	SHORT	SHOR

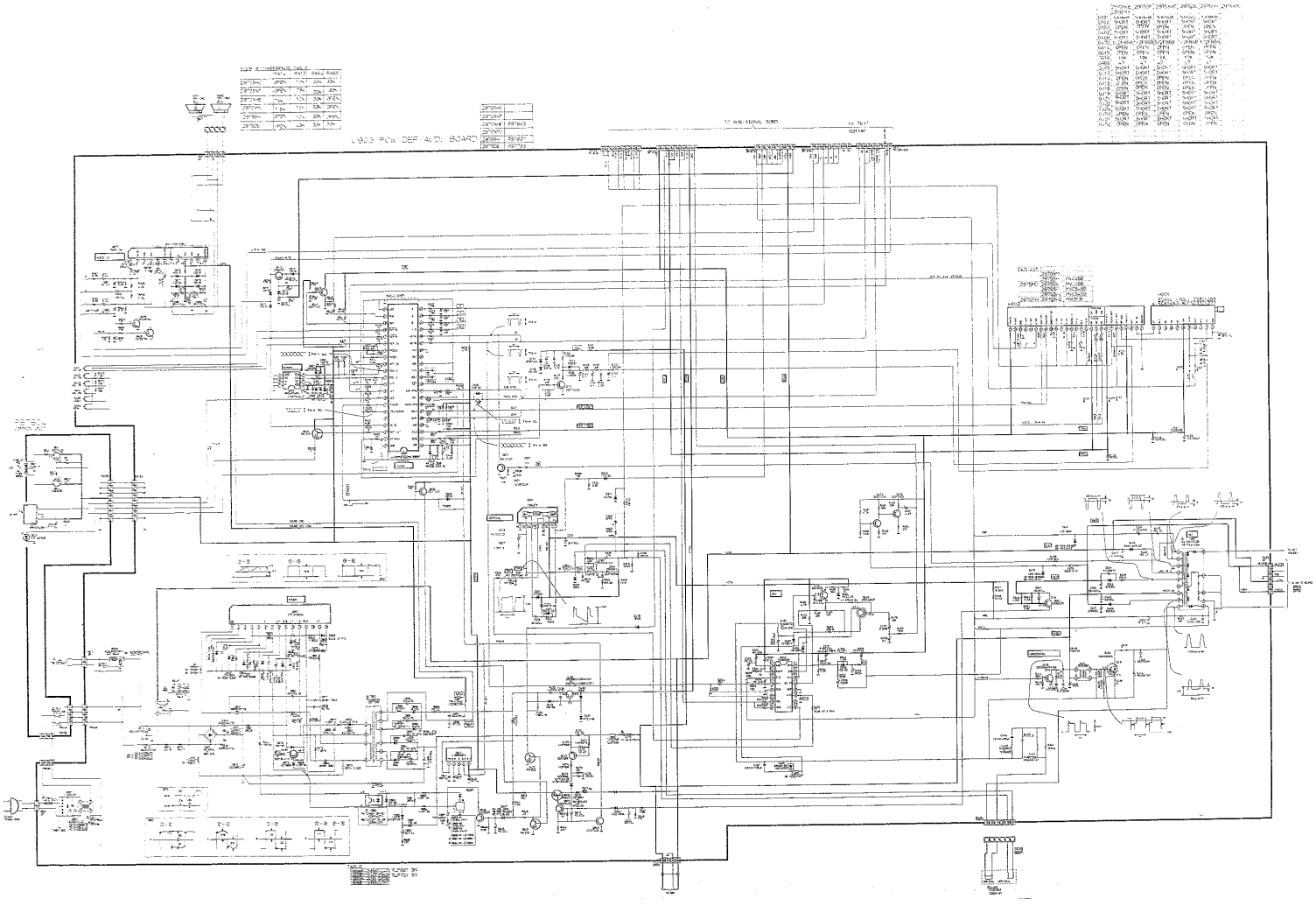
C	2975DE	2975SH	2970XMJ
	OPEN	OPEN	
	OPEN	OPEN	
	OPEN	OPEN	
	OPEN	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	OPEN	OPEN	
	OPEN	OPEN	
	OPEN	OPEN	
	120	OPEN	
	120	OPEN	
	120	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	OPEN	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	
	SHORT	OPEN	

	2970XHE 2970MH	2975SP	2975XHC	2975DE	2975SH	2970XMJ
GJ56	OPEN	SHORT	OPEN	SHORT	OPEN	
C220	OPEN	0.1	OPEN	104D	OPEN	
C221	OPEN	0.1	OPEN	104D	OPEN	
C222	OPEN	0.1	OPEN	104D	OPEN	
RV22	OPEN	100	OPEN	OPEN	OPEN	
RV23	OPEN	1K	OPEN	OPEN	OPEN	
QV14	OPEN	2SC17405	OPEN	OPEN	OPEN	
CV35	OPEN	0.01	OPEN	OPEN	OPEN	
QV01	TA1219N	TA1218N	TA1219N	TA1219N	TA1219N	
Q501	TB1227AN	TB1230N	TB1230N	TB1230N	TB1230N	
GJ60	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ61	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ62	OPEN	OPEN	OPEN	OPEN	OPEN	
GV01	SHORT	SHORT	SHORT	SHORT	SHORT	
GV02	SHORT	SHORT	SHORT	SHORT	SHORT	
GY01	OPEN	330	SHORT	OPEN	OPEN	
GY19	OPEN	1K	OPEN	OPEN	OPEN	
GR42	OPEN	SHORT	OPEN	OPEN	OPEN	
RY13	OPEN	10K	OPEN	OPEN	OPEN	
RR11	SHORT	OPEN	SHORT	SHORT	SHORT	

G101
G102
G103
G402
G406
G472
G614
G615
G616
GA60
GJ05
GJ12
GJ14
GJ15
GJ50

SCHEMATIC DIAGRAM MODEL : 2975DE / 2975SH (2/2)

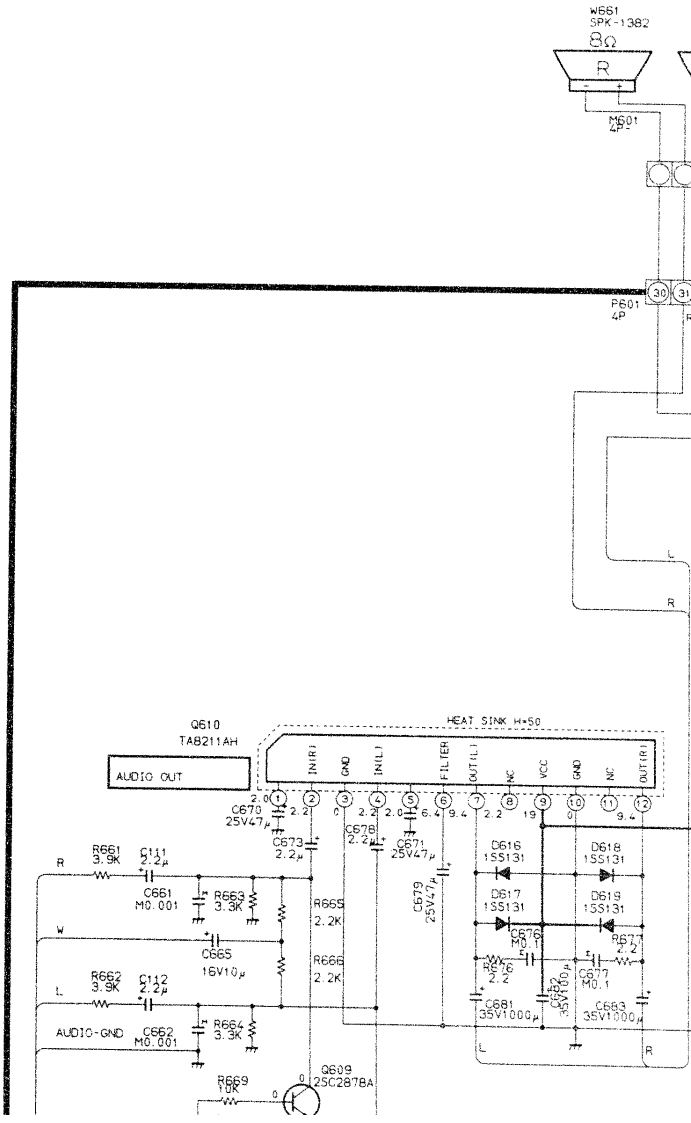
060-9717



SCHEMATIC DIAGRAM

MODEL : 2975DE / 2975SH

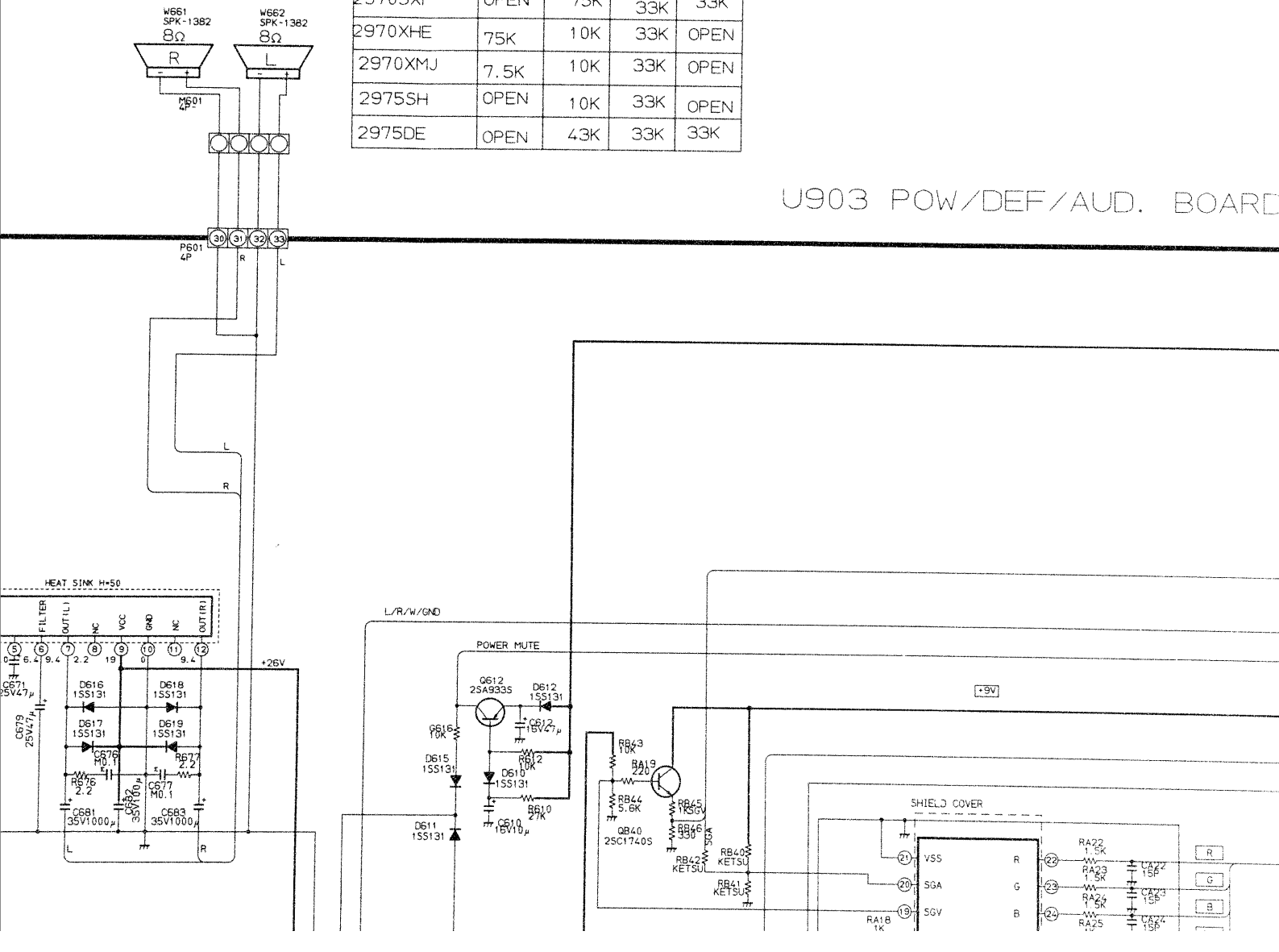
060-9717



/ 2975SH (2/2)

MODE R DIFFERENCE TABLE

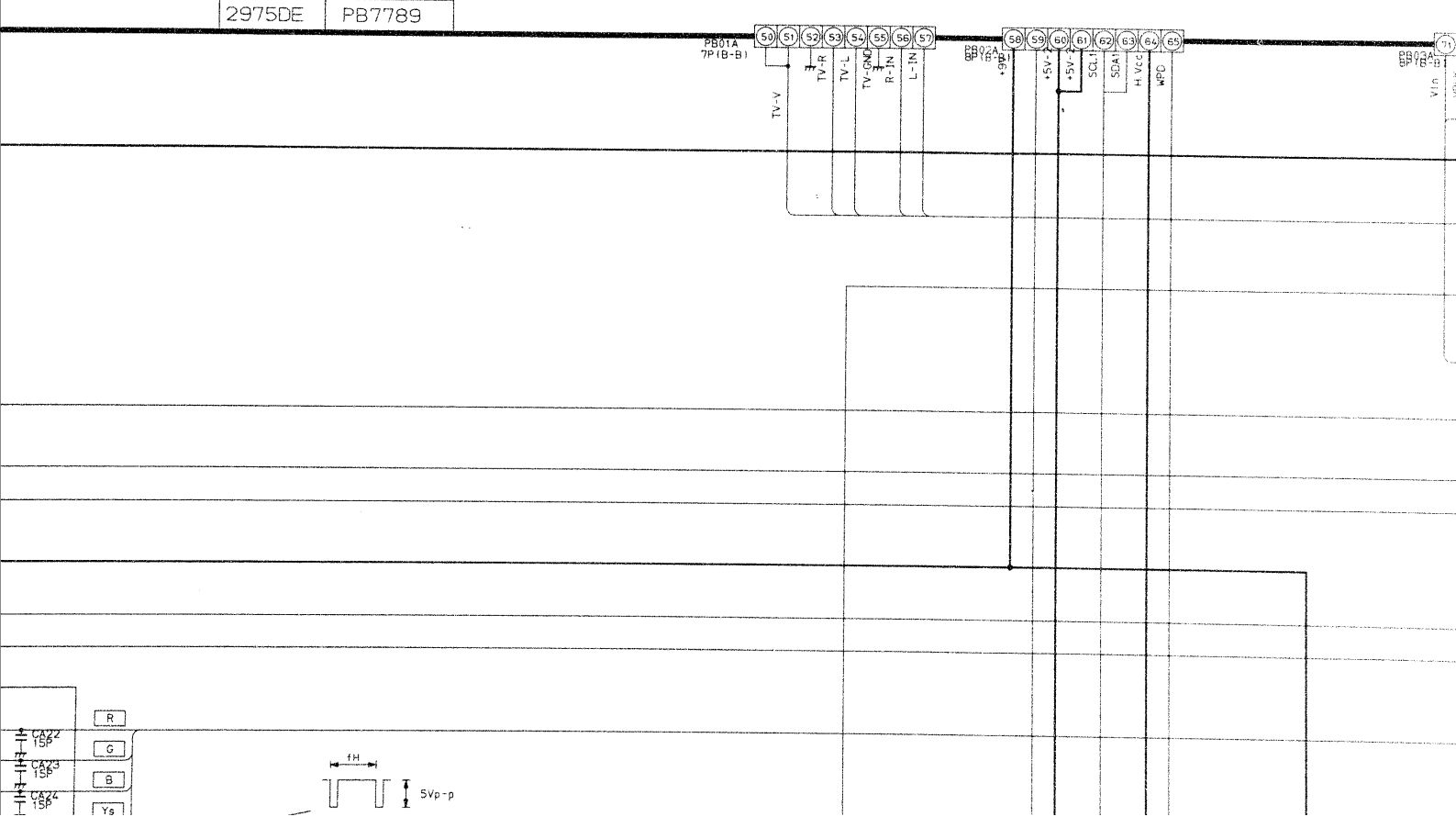
	RA14	RA15	RA64	RA65
2970SHC	OPEN	10K	33K	33K
2970SXP	OPEN	75K	33K	33K
2970XHE	75K	10K	33K	OPEN
2970XMJ	7.5K	10K	33K	OPEN
2975SH	OPEN	10K	33K	OPEN
2975DE	OPEN	43K	33K	33K

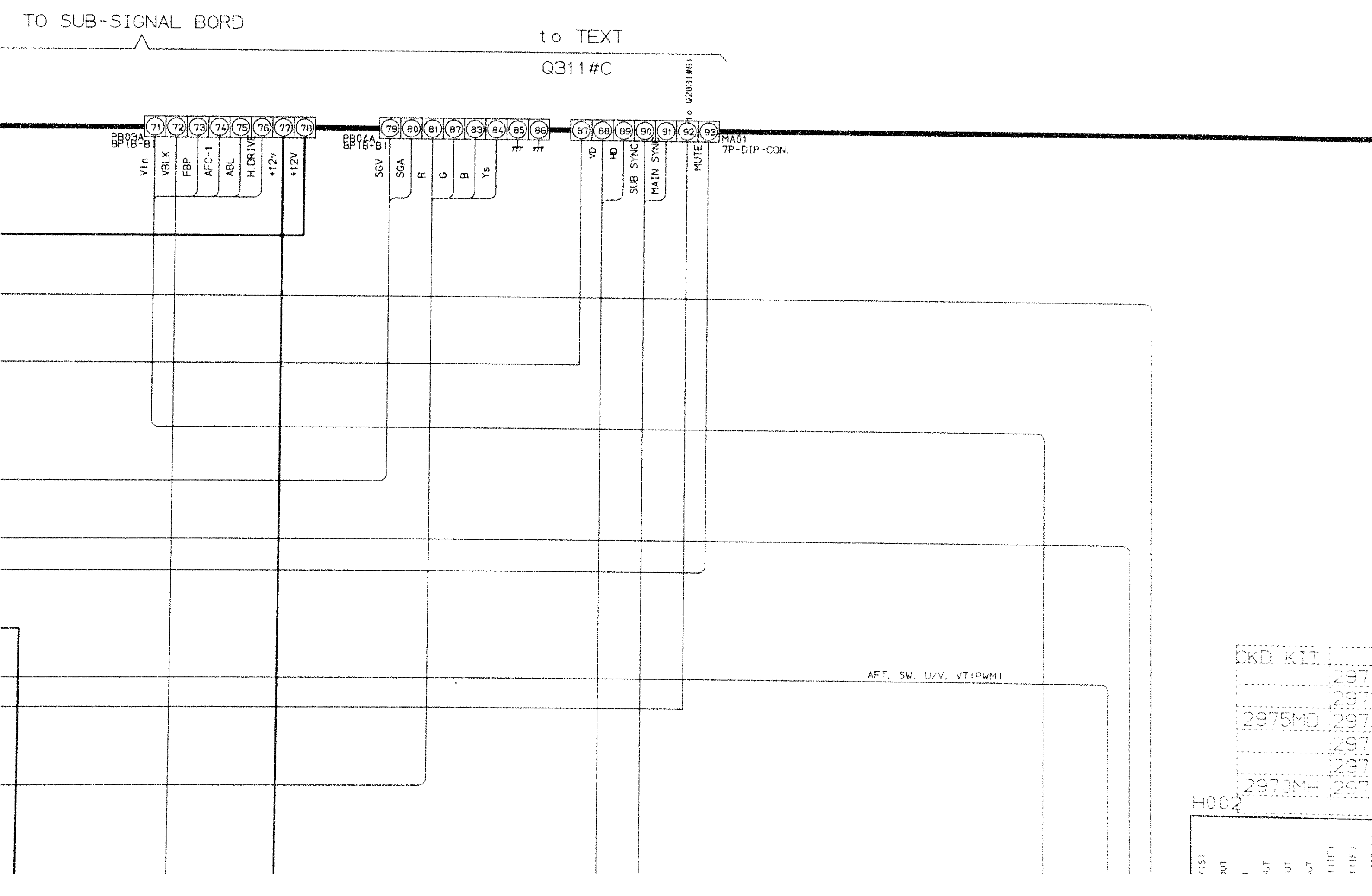


U903 POW/DEF/AUD. BOARD

2970SHC	
2970SXP	
2970XHE	PB7603
2970XMJ	
2975SH	PB7697
2975DE	PB7789

UD. BOARD



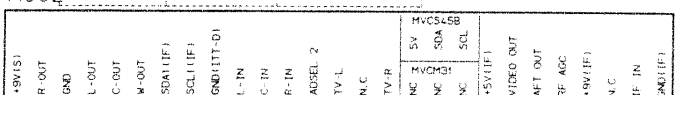


TO SUB-SIGNAL BORD
to TEXT
Q311#C
to Q203(#6)
PB03A
BP1B-B1
PB04A
BP1B-B1
MA01
7P-DIP-CON.
Vin
VBLK
FBP
AFC-1
ABL
H.DRIVE
+12v
+12V
SGV
SGA
R
G
B
Ys
VD
HD
SUB SYNC
MAIN SYNC
MUTE
AFT. SW. U/V. VT(PWM)
CKD KIT
2975MD
2970MH
H002

	2970XHE	2975SP	2975XHC	2975DE	2975SH	2970XMJ
	2970MH					
G101	TLN3040D	TLN3040D	TLN3040D	TLN3040D	TLN3040D	
G102	SHORT	SHORT	SHORT	SHORT	SHORT	
G103	OPEN	OPEN	OPEN	OPEN	OPEN	
G402	SHORT	SHORT	SHORT	SHORT	SHORT	
G406	SHORT	SHORT	SHORT	SHORT	SHORT	
G472	1/2FR68	1/2FR68	1/2FR68	1/2FR68	1/2FR68	
G614	OPEN	OPEN	OPEN	OPEN	OPEN	
G615	OPEN	OPEN	OPEN	OPEN	OPEN	
G616	10K	10K	10K	10K	10K	
GA60	47	47	47	47	47	
GJ05	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ12	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ14	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ15	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ16	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ18	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ21	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ22	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ24	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ50	OPEN	OPEN	OPEN	OPEN	OPEN	
GJ51	SHORT	SHORT	SHORT	SHORT	SHORT	
GJ52	OPEN	OPEN	OPEN	OPEN	OPEN	

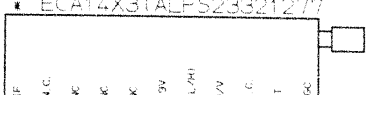
CKD KIT		
	2970XMJ	
	2975SH	MVC45B
2975MD	2975DE	MVC45B
	2975SP	MVCS45B
	2975SHC	MVCS45B
2970MH	2970XHE	MVCM31

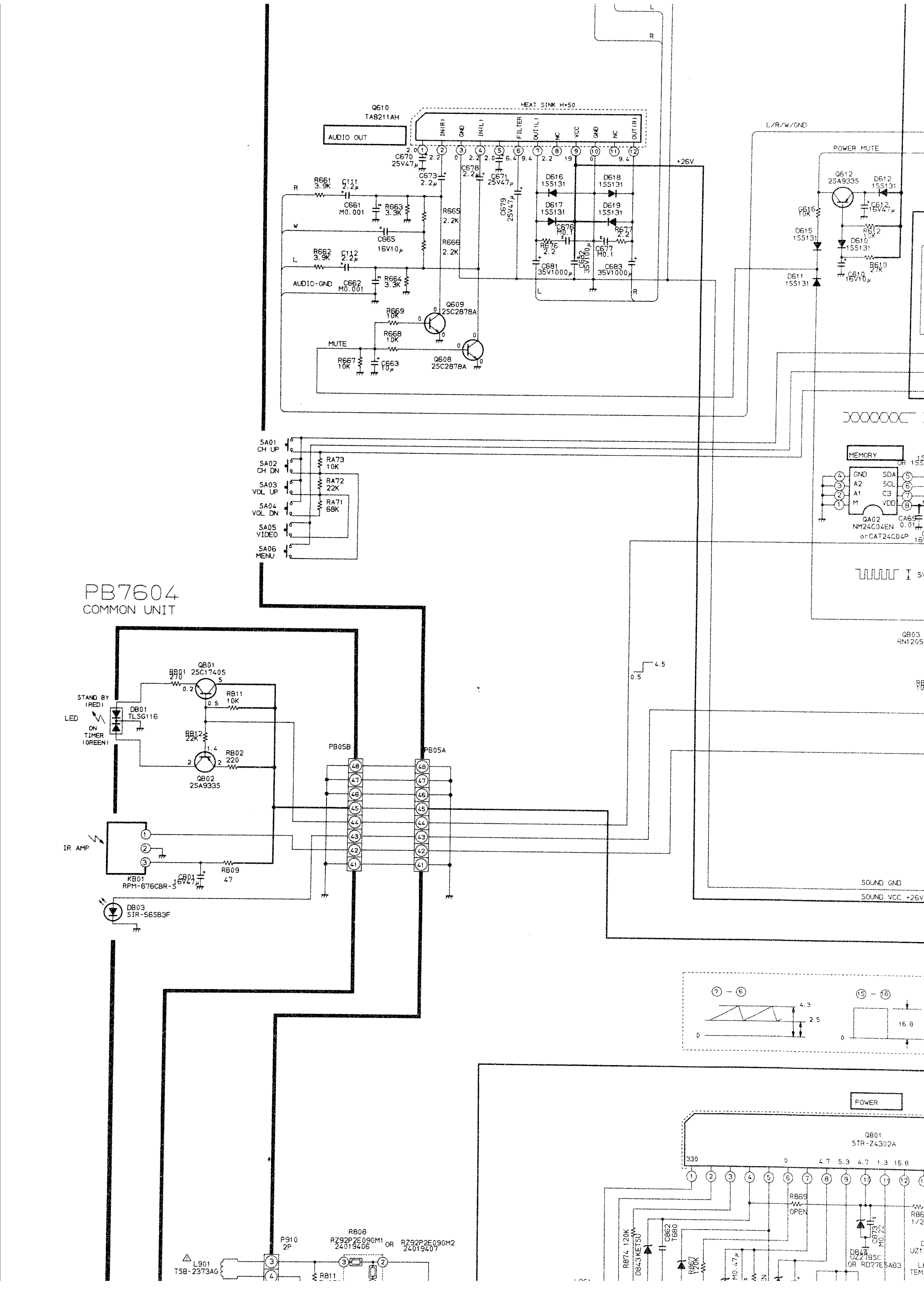
H002

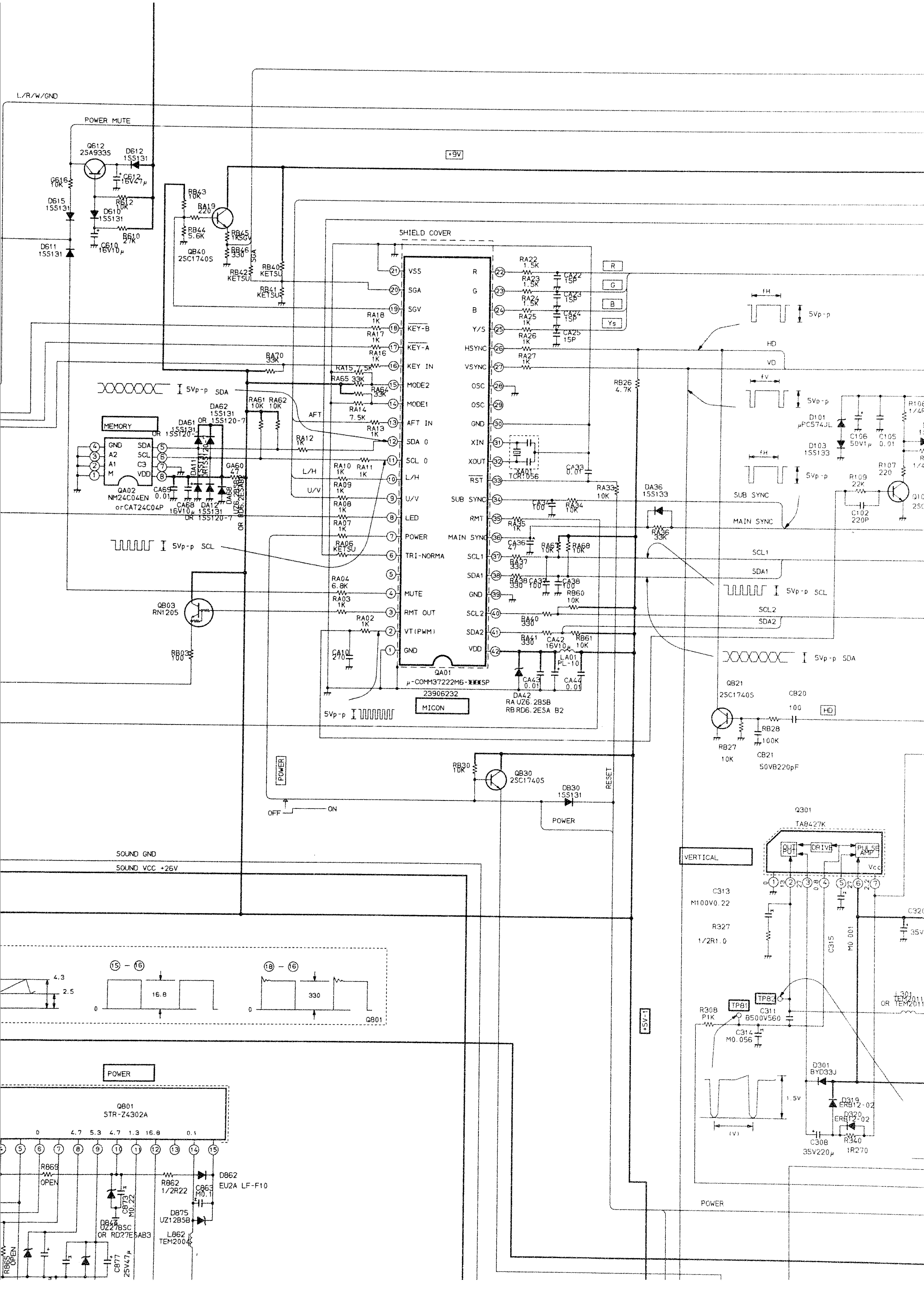


H001

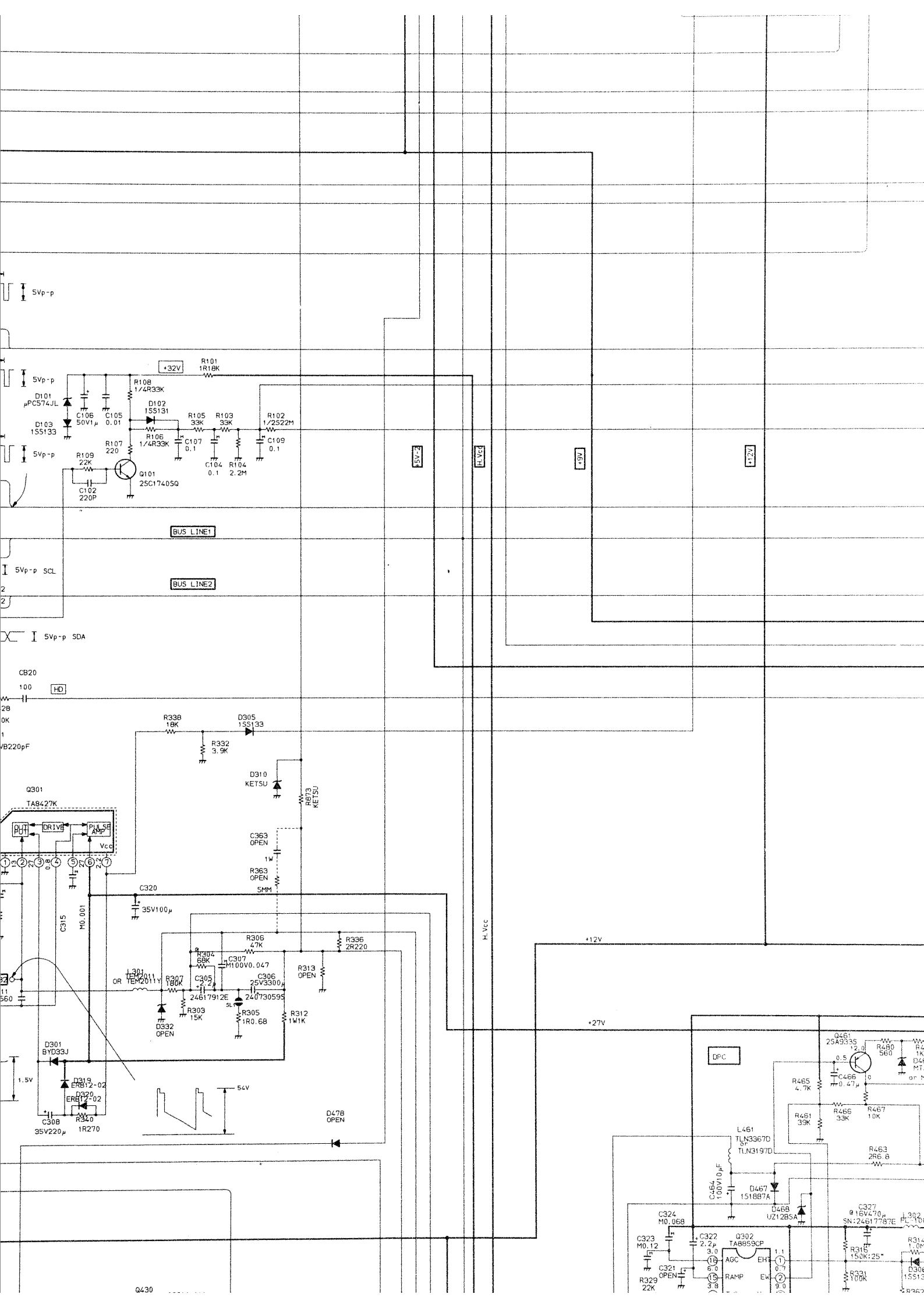
ECA14 (TDLJ 23321269
ECA14X3(ALPS23321277

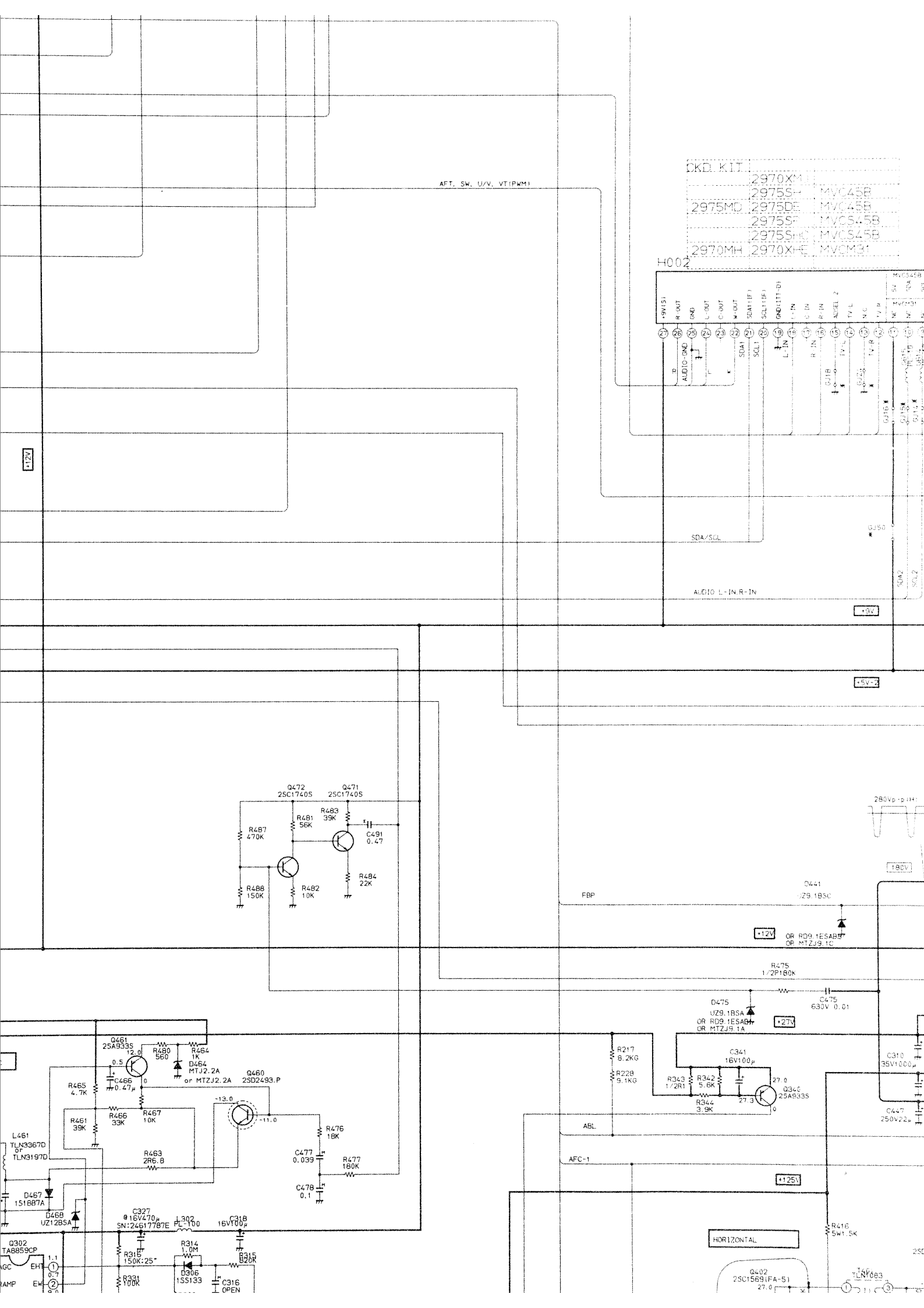



PB7604
COMMON UNIT
Q610
TA8211AH
AUDIO OUT
HEAT SINK H=50
IN(R)
GND
IN(L)
FILTER
OUT(L)
NC
VCC
GND
NC
OUT(R)
+26V
C670 25V47μ
C673 2.2μ
C678 2.2μ
C671 25V47μ
C679 25V47μ
R661 3.9K
C111 2.2μ
C661 M0.001
R663 3.3K
R665 2.2K
C665 16V10μ
R666 2.2K
R662 3.9K
C112 2.2μ
R664 3.3K
AUDIO-GND
C662 M0.001
D616 1SS131
D618 1SS131
D617 1SS131
D619 1SS131
C676 M0.1
R676 2.2
C677 M0.1
R677 2.2
C681 35V1000μ
C682 35V100μ
C683 35V1000μ
Q609 2SC2878A
R669 10K
R668 10K
MUTE
R667 10K
C663 10μ
Q608 2SC2878A
L/R/W/GND
POWER MUTE
Q612 2SA933S
D612 1SS131
R616 10K
C612 16V47μ
R612 10K
D615 1SS131
D610 1SS131
R610 27K
C610 16V10μ
D611 1SS131
SA01 CH UP
SA02 CH DN
SA03 VOL UP
SA04 VOL DN
SA05 VIDEO
SA06 MENU
RA73 10K
RA72 22K
RA71 68K
MEMORY
GND
A2
A1
M
SDA
SCL
C3
VDD
QA02
NM24C04EN
or CAT24C04P
CA69 0.01
QB03
RN1205
STAND BY (RED)
LED
ON TIMER (GREEN)
DB01 TLSG116
QB01 2SC1740S
RB01 270
RB11 10K
RB12 22K
RB02 220
QB02 2SA933S
PB05B
PB05A
IR AMP
KB01 RPM-676CBR-S
CB01 16V47μ
RB09 47
DB03 SIR-563B3F
SOUND GND
SOUND VCC +26V
⑦ - ⑥
⑮ - ⑯
POWER
QB01
STR-Z4302A
R869 OPEN
R874 120K
D843 KETSU
C862 T680
R867 120K
C873 M0.22
D847 UZ27BSC OR RD27ESAB3
P910 2P
R808
RZ92P2E090M1 24019406 OR RZ92P2E090M2 24019407
L901 TSB-2373AG
R811

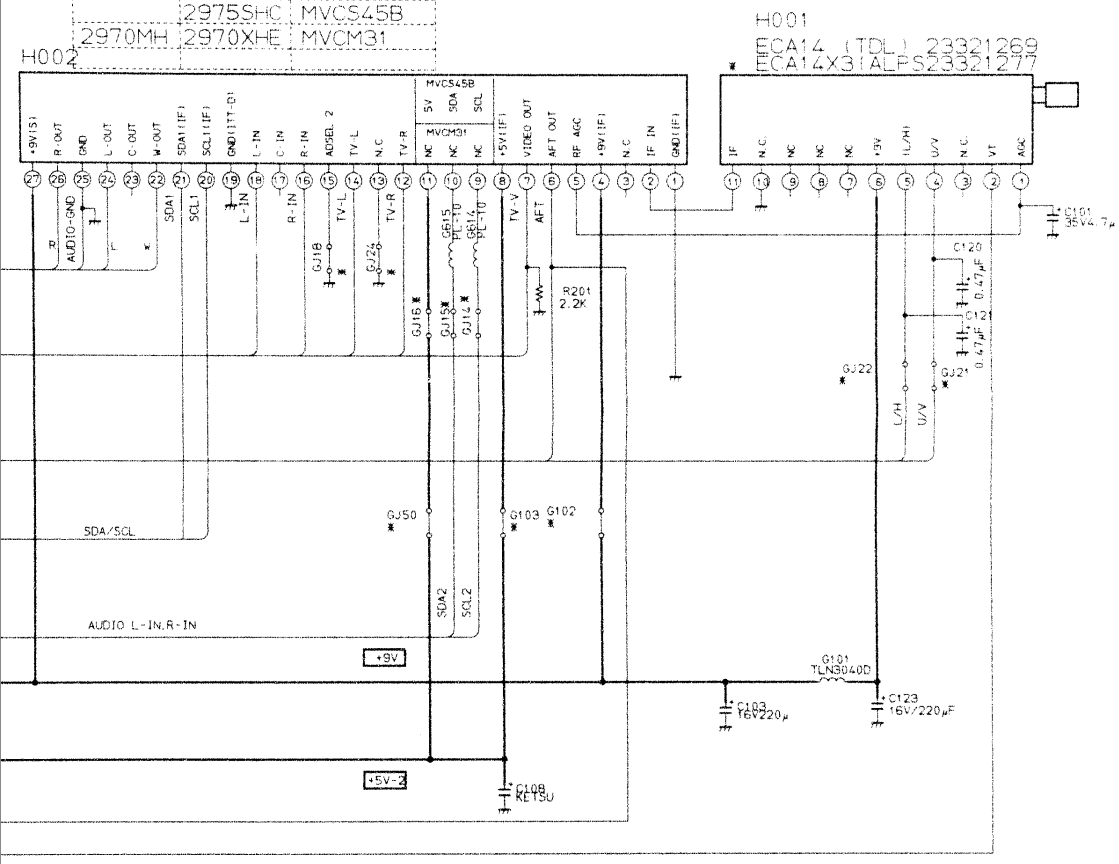


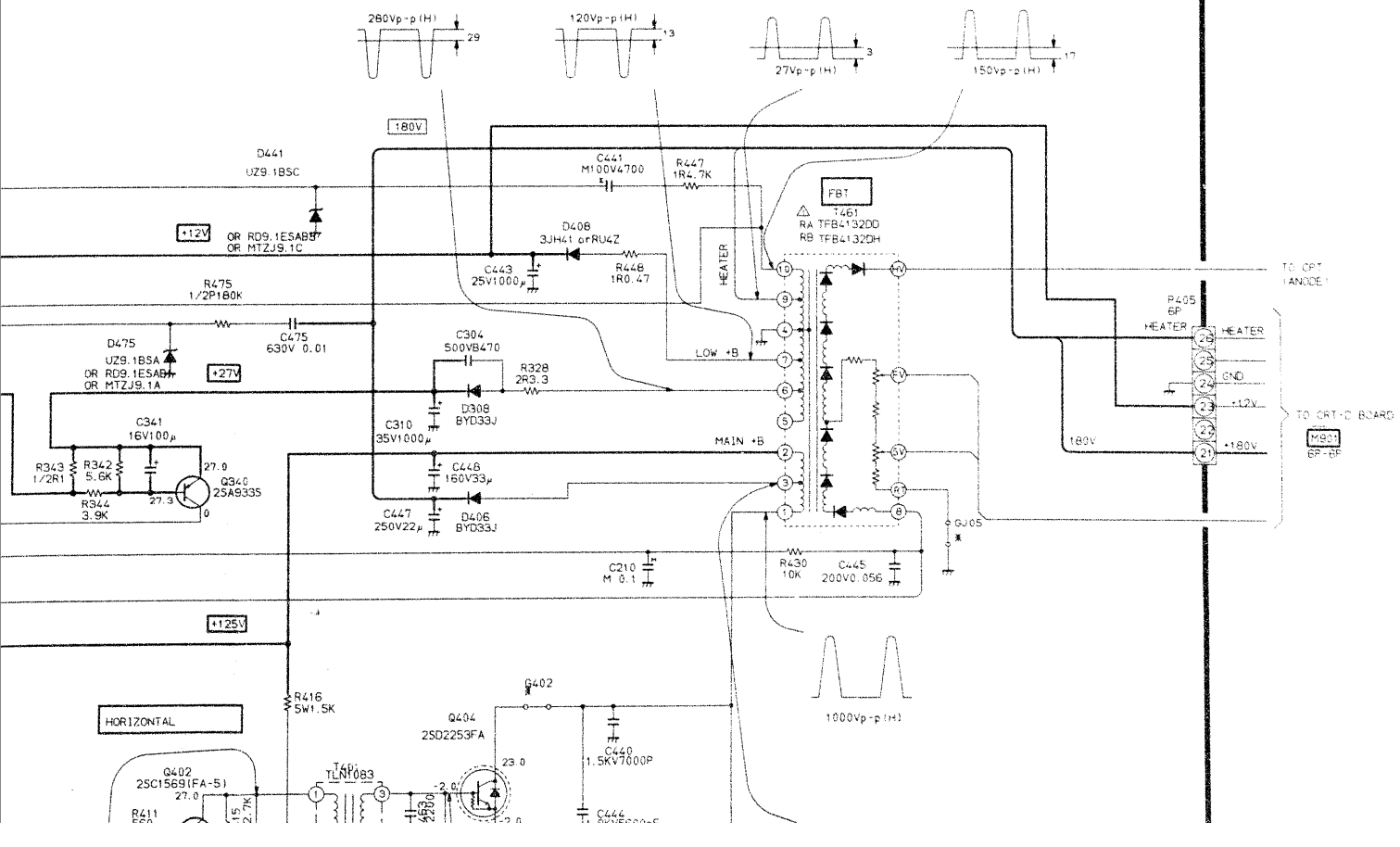
L/R/W/GND
POWER MUTE
+9V
SHIELD COVER
MEMORY
QA02
NM24C04EN
orCAT24C04P
QA01
μ-COM M37222M6-XXXSP
23906232
MICON
SDA
SCL
5Vp-p
HD
VD
SUB SYNC
MAIN SYNC
SCL1
SDA1
SCL2
SDA2
QB21
2SC1740S
QB30
2SC1740S
QB03
RN1205
QB40
2SC1740S
Q612
2SA933S
POWER
RESET
OFF
ON
SOUND GND
SOUND VCC +26V
VERTICAL
Q301
TA8427K
OUT PUT
DRIVE
PULSE AMP
Q801
STR-Z4302A
D101
μPC574JL
D301
BYD33J
D862
EU2A LF-F10

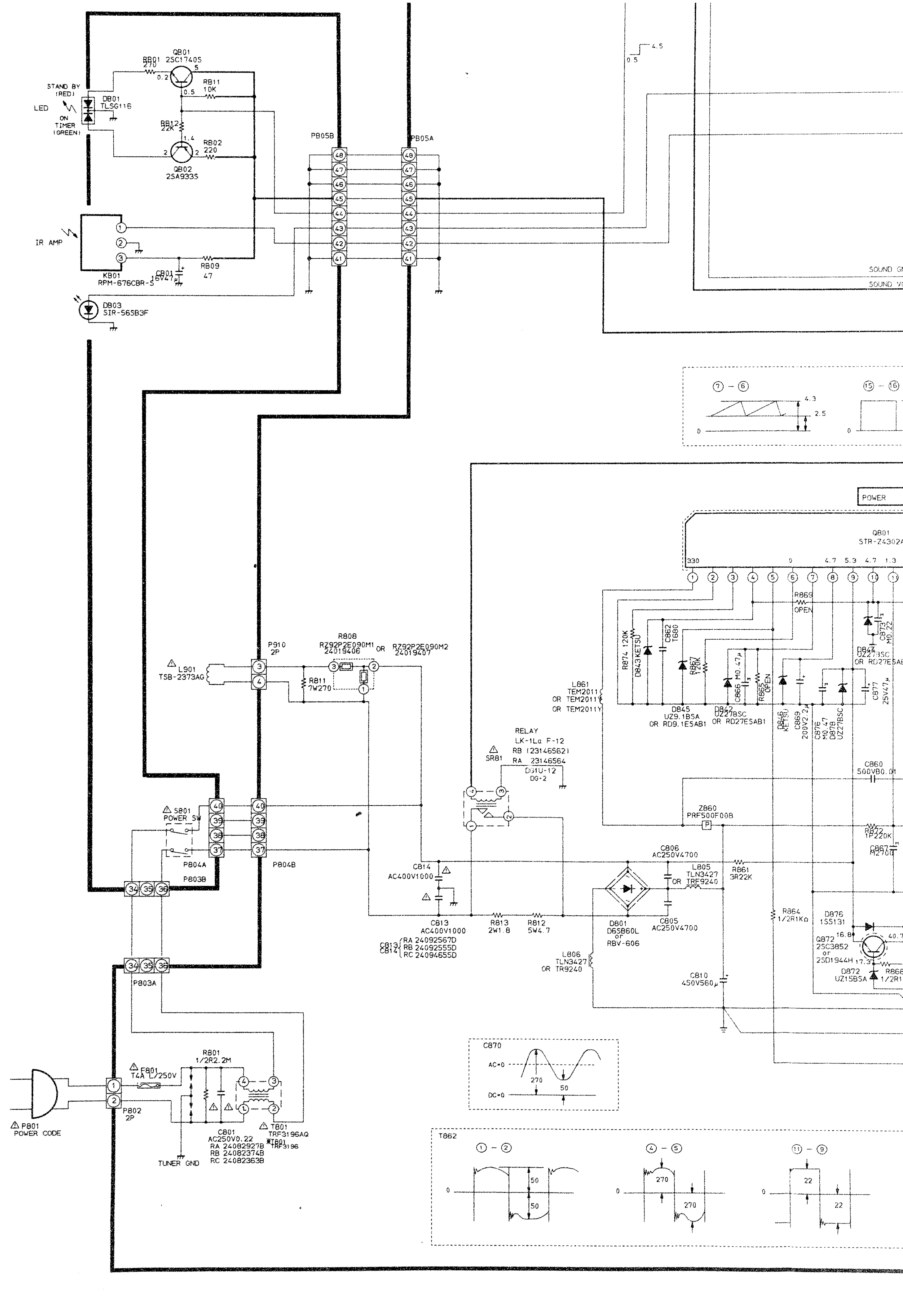

5Vp-p
+32V
R101
1R18K
R108
1/4R33K
D101
μPC574JL
D103
1SS133
C106
50V1μ
C105
0.01
D102
1SS131
R105
39K
R103
33K
R102
1/2S22M
R106
1/4R33K
C107
0.1
C104
0.1
R104
2.2M
C109
0.1
R107
220
R109
22K
C102
220P
Q101
2SC1740SQ
5V-2
H.Vcc
+9V
+12V
BUS LINE1
5Vp-p SCL
BUS LINE2
5Vp-p SDA
CB20
100
HD
R338
18K
D305
1SS133
R332
3.9K
D310
KETSU
R873
KETSU
Q301
TA8427K
OUTPUT
DRIVE
PULSE AMP
Vcc
C363
OPEN
1W
R363
OPEN
5MM
C320
35V100μ
C315
M0.001
R306
47K
R336
2R220
R404
68K
C307
M100V0.047
R313
OPEN
L301
OR TEM2011Y
R307
180K
C305
2.2μ
C306
25V3300μ
24617912E
24030595
R303
15K
R305
1R0.68
R312
1W1K
D332
OPEN
D301
BYD33J
1.5V
D319
ERB12-02
D320
ERB12-02
C308
35V220μ
R320
1R270
54V
D478
OPEN
H.Vcc
+12V
+27V
DPC
Q461
2SA933S
R480
560
C486
0.47μ
R485
4.7K
R466
33K
R467
10K
R461
39K
L461
TLN3367D
OR
TLN3197D
R463
2R6.8
C464
100V10μF
D467
1S1887A
D468
UZ12BSA
C327
@16V470μ
SN:24617787E
C324
M0.068
C323
M0.12
C322
2.2μ
Q302
TA8859CP
AGC
EHT
RAMP
EW
C321
OPEN
R329
22K
R315
150K:25"
R331
100K
Q430

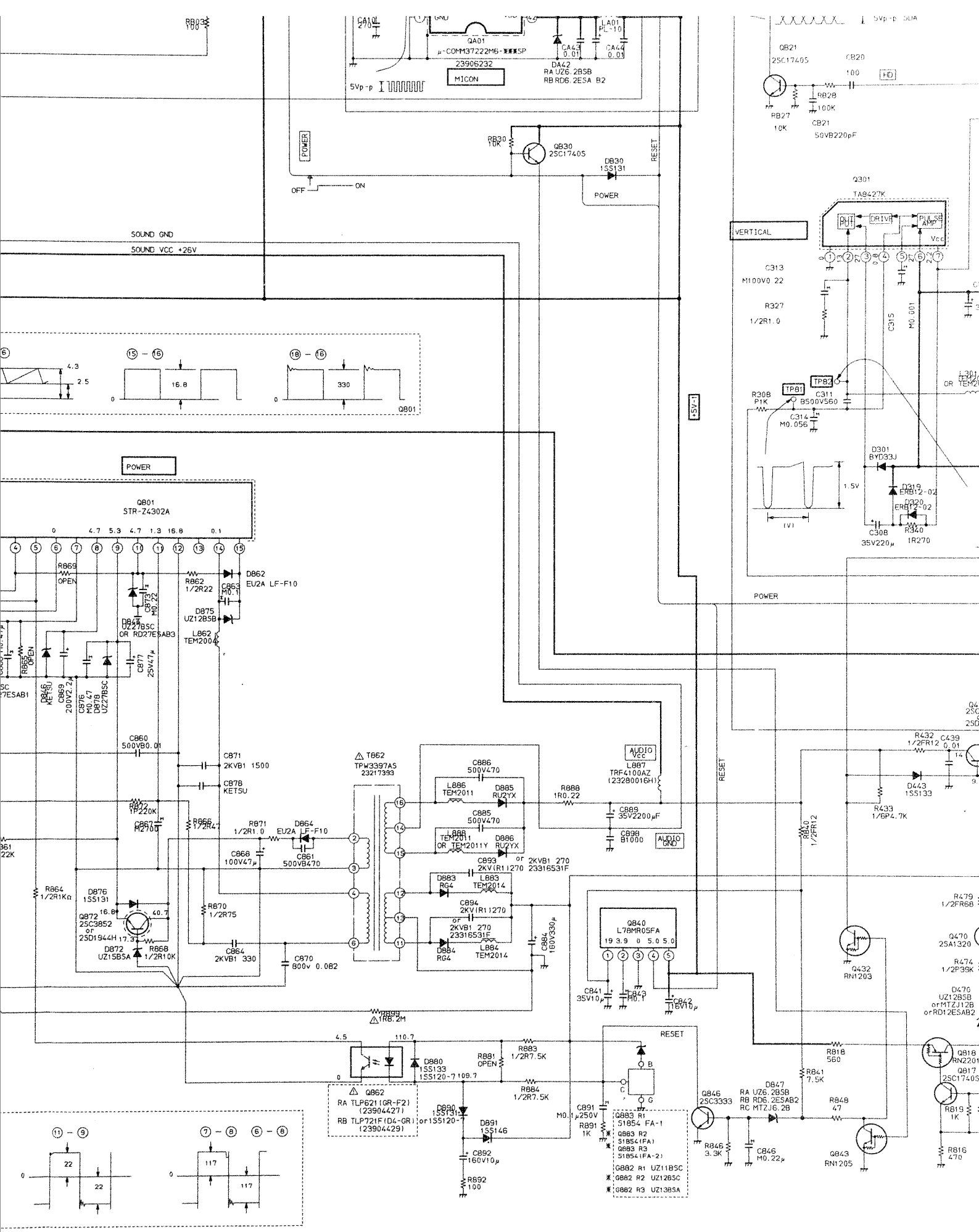

CKD KIT
2970XM
2975SH MVC45B
2975MD 2975DE MVC45B
2975SF MVCS45B
2975SHC MVCS45B
2970MH 2970XHE MVCM31
H002
AFT, SW, U/V, VT(PWM)
+12V
SDA/SCL
AUDIO L-IN,R-IN
+9V
+5V-2
Q472 2SC1740S
Q471 2SC1740S
R487 470K
R481 56K
R483 39K
C491 0.47
R484 22K
R488 150K
R482 10K
FBP
D441 UZ9.1BSC
OR RD9.1ESAB3
OR MTZJ9.1C
R475 1/2P180K
C475 630V 0.01
D475 UZ9.1BSA
OR RD9.1ESAB3
OR MTZJ9.1A
+27V
Q461 2SA933S
R480 560
R464 1K
D464 MTZJ2.2A
or MTZJ2.2A
Q460 2SD2493.P
C466 0.47μ
R465 4.7K
R466 33K
R467 10K
R461 39K
R463 2R6.8
L461 TLN3367D or TLN3197D
D467 1S1887A
D468 UZ12BSA
R476 18K
C477 0.039
R477 180K
C478 0.1
R217 8.2KG
R228 9.1KG
C341 16V100μ
R343 1/2R1
R342 5.6K
R344 3.9K
Q340 2SA933S
C310 35V1000μ
C447 250V22μ
ABL
AFC-1
+125V
HORIZONTAL
R416 5W1.5K
C327 @16V470μ SN:24617787E
L302 PL-100
C318 16V100μ
Q302 TA8859CP
R315 150K:25*
R314 1.0M
R316 820K
D306 1SS133
R331 100K
C316 OPEN
Q402 2SC1569(FA-5)
TLN1063

CKD	KIT	
	2970XMJ	
	2975SH	MVC45B
2975MD	2975DE	MVC45B
	2975SP	MVCS45B
	2975SHC	MVCS45B
2970MH	2970XHE	MVCM31



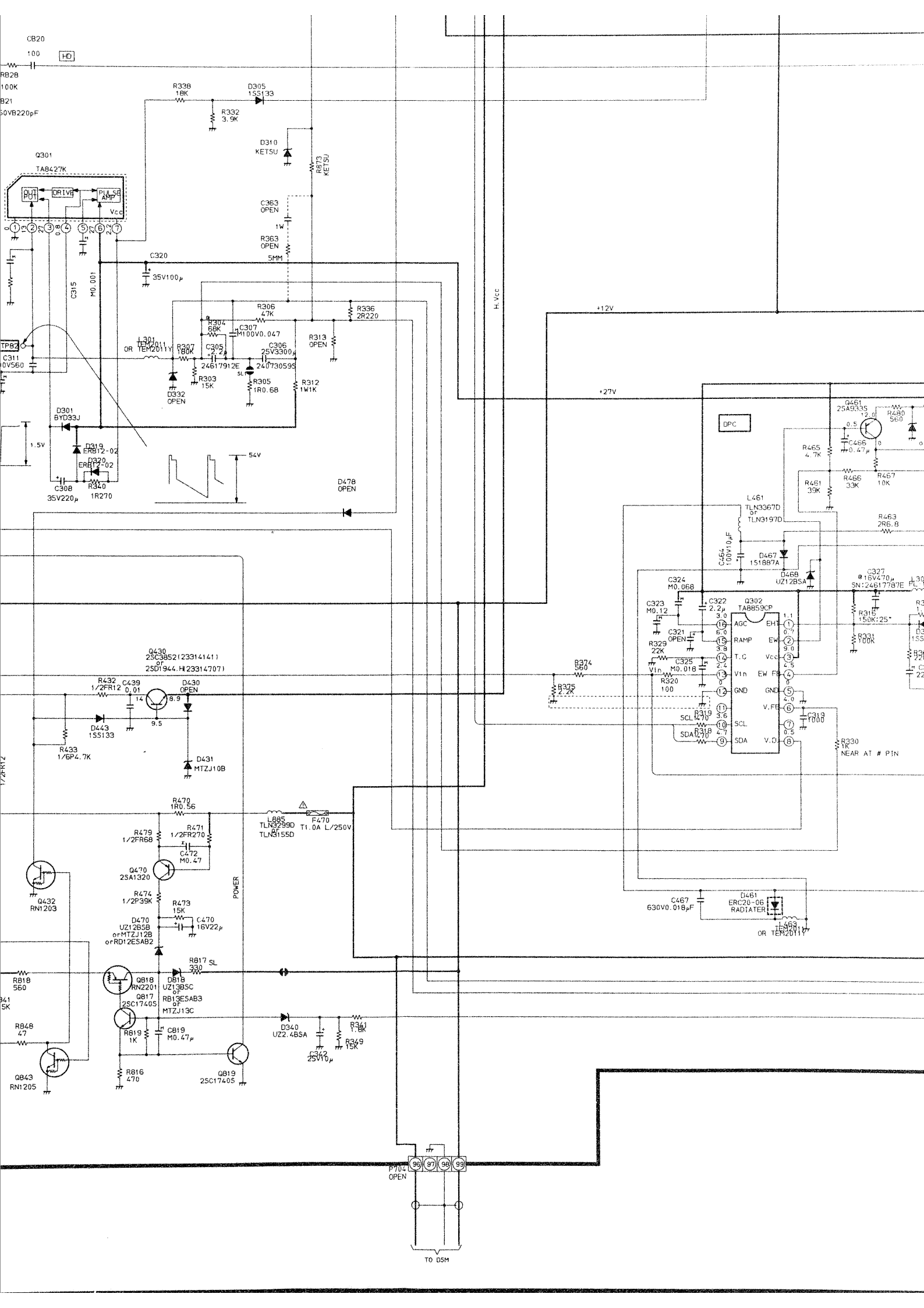


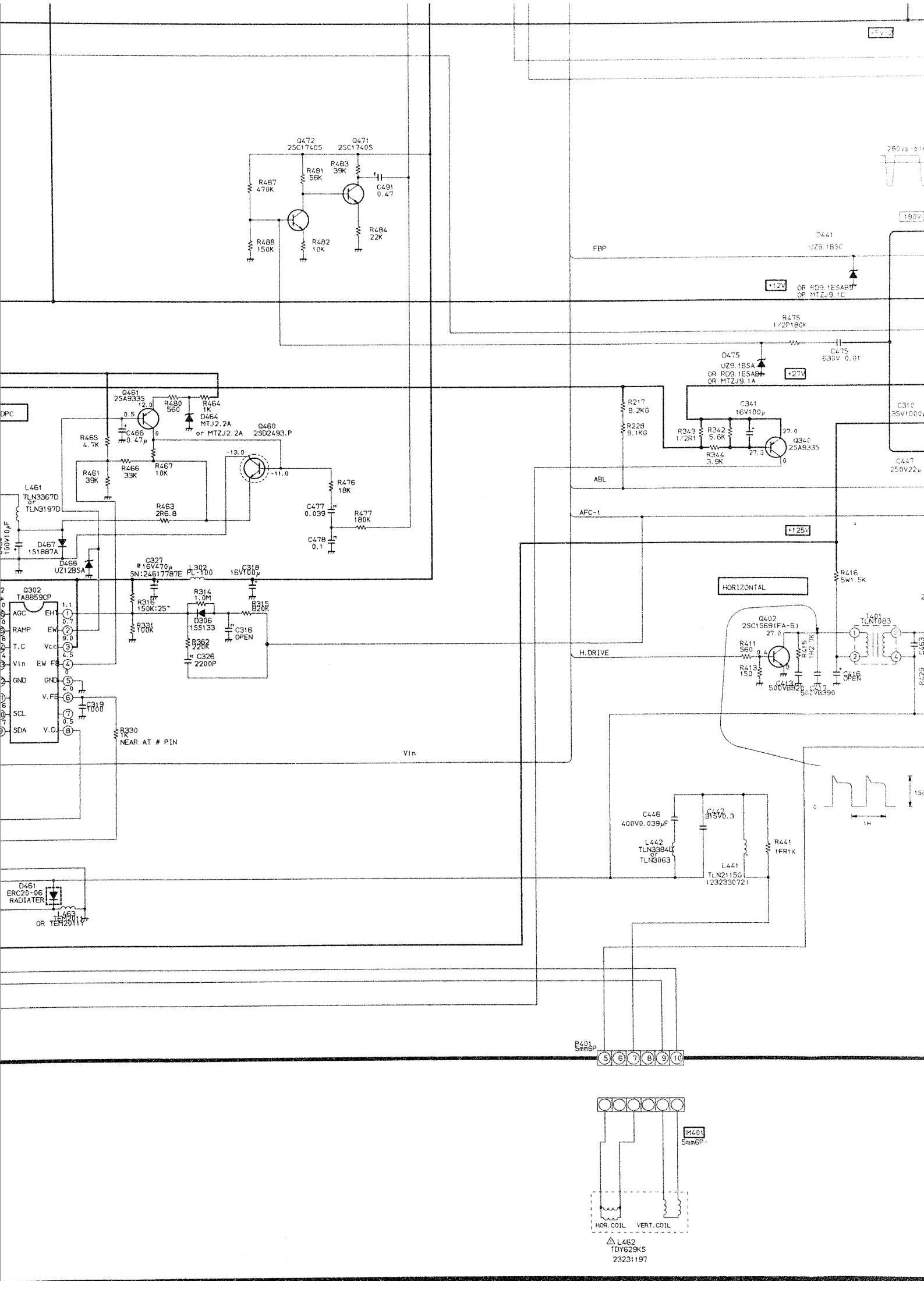

STAND BY (RED)
LED
ON TIMER (GREEN)
D801 TLSG116
Q801 2SC1740S
R801 270
R811 10K
R812 22K
R802 220
Q802 2SA933S
P805B
P805A
IR AMP
K801 RPM-676CBR-S
C801 16V47μ
R809 47
D803 SIR-565B3F
SOUND GND
SOUND VOL
POWER
Q801 STR-Z4302A
RELAY
LK-1La F-12
RB (23146562)
RA 23146564
DG1U-12
DG-2
SR81
L901 TSB-2373AG
P910 2P
R808 RZ92P2E090M1 24019406 OR RZ92P2E090M2 24019407
R811 7W270
S801 POWER SW
P804A
P804B
P803B
P803A
C814 AC400V1000
C813 AC400V1000
R813 2W1.8
R812 5W4.7
D801 D6SB60L or RBV-606
C806 AC250V4700
C805 AC250V4700
L805 TLN3427 OR TRF9240
L806 TLN3427 OR TR9240
R861 3R22K
Z860 PRF500F008
C810 450V560μ
C860 500VB0.01
R864 1/2R1KΩ
D876 1SS131
Q872 2SC3852 or 2SD1944H
D872 UZ15BSA
L861 TEM2011 OR TEM2011 OR TEM2011Y
R874 120K
D843 KETSU
C862 T680
R867 120K
D845 UZ9.1BSA OR RD9.1ESAB1
D842 UZ27BSC OR RD27ESAB1
C866 M0.47μ
R865 OPEN
R869 OPEN
D846 KETSU
C869 200V2.2μ
C876 M0.47
D878 UZ27BSC
C877 25V47μ
C873 M0.22
D847 UZ27BSC OR RD27ESAB1
R872 1P220K
C867 M2700
C870
AC=0
DC=0
T862
P801 POWER CODE
F801 T4A L/250V
P802 2P
R801 1/2R2.2M
C801 AC250V0.22
RA 24082927B
RB 24082374B
RC 24082363B
T801 TRF3196AQ
TUNER GND
C813 C814 RA 24092567D RB 24092555D RC 24094655D

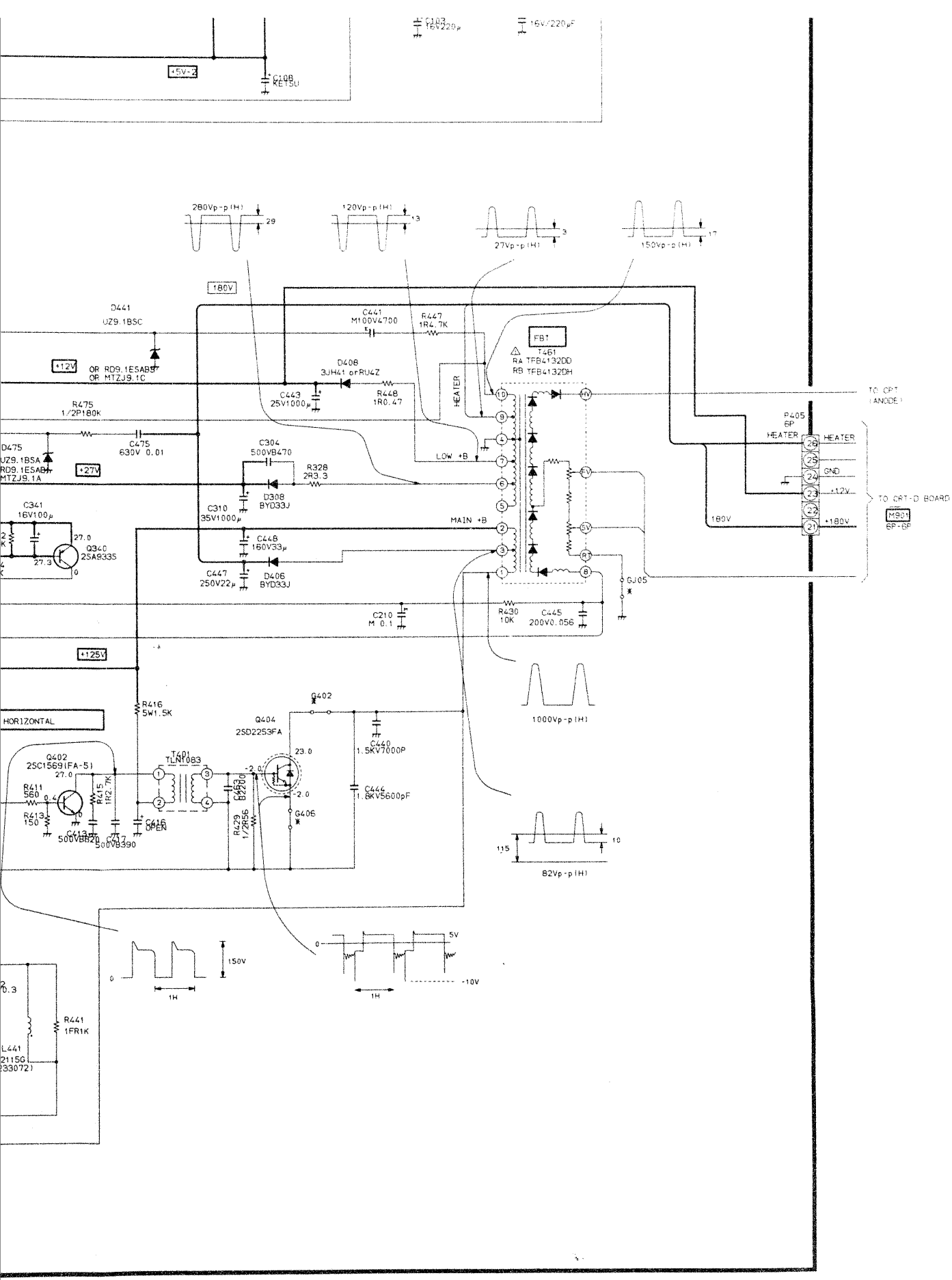


TABLE

2970XHE	TLP721F	TLP621 SN
2970MH	TLP721F	
2975SP	TLP621 TLP721F	TLP721 SN
2975SHC	TLP621 TLP721F	
2975SH	TLP621 TLP721F	
2975DE	TLP721F	


C820
1.00
HD
R828
100K
B21
50VB220pF
R338
18K
D305
1SS133
R332
3.9K
D310
KETSU
R873
KETSU
Q301
TA8427K
OUT PUT
DRIVE
PULSE AMP
Vcc
C363
OPEN
1W
R363
OPEN
5MM
C320
35V100μ
C315
M0.001
R306
47K
R336
2R220
R304
68K
C307
M100V0.047
R313
OPEN
L301
OR TEM2011Y
R307
180K
C305
2.2μ
24617912E
C306
25V3300μ
24730595
R303
15K
R305
1R0.68
R312
1W1K
TP83
C311
0V560
D332
OPEN
D301
BYD33J
1.5V
D319
ERB12-02
D320
ERB12-02
C308
35V220μ
R340
1R270
54V
D478
OPEN
+12V
+27V
H.Vcc
DPC
Q461
2SA9335
R480
560
C466
0.47μ
R465
4.7K
R466
33K
R467
10K
R481
39K
L461
TLN3367D
OR
TLN3197D
R463
2R6.8
C464
100V10μ
D467
1S1887A
D468
UZ12BSA
C324
M0.068
C323
M0.12
C322
2.2μ
Q302
TA8859CP
AGC
RAMP
T.C
V1n
GND
SCL
SDA
EHT
EW
Vcc
EW FB
V.FB
V.D
C321
OPEN
R329
22K
C325
M0.018
R320
100
R319
470
R318
470
C319
1000
R330
1K
NEAR AT # PIN
C327
@16V470μ
SN:24617787E
R315
150K:25*
R331
100K
B374
560
B375
2.2K
Q430
2SC3852(23314141)
or
2SD1944-H(23314707)
R432
1/2FR12
C439
0.01
D430
OPEN
D443
1SS133
R433
1/6P4.7K
D431
MTZJ10B
R470
1R0.56
L885
TLN3299D
OR
TLN3155D
F470
T1.0A L/250V
R479
1/2FR68
R471
1/2FR270
C472
M0.47
Q470
2SA1320
R474
1/2P39K
R473
15K
C470
16V22μ
D470
UZ12B5B
orMTZJ12B
orRD12ESAB2
POWER
Q432
RN1203
R817 SL
330
Q818
RN2201
D818
UZ13BSC
or
RB13ESAB3
or
MTZJ13C
Q817
2SC1740S
R819
1K
C819
M0.47μ
R818
560
R848
47
Q843
RN1205
R816
470
Q819
2SC1740S
D340
UZ2.4BSA
C342
25V10μ
R341
1.8K
R349
15K
C467
630V0.018μF
D461
ERC20-06
RADIATER
L462
OR TER2011Y
P704
OPEN
96
97
98
99
TO D5M


Q472 2SC1740S
Q471 2SC1740S
R483 39K
R481 56K
R487 470K
C491 0.47
R488 150K
R482 10K
R484 22K
FBP
D441 UZ9.1BSC
+12V
OR RD9.1ESAB3
OR MTZJ9.1C
R475 1/2P180K
C475 630V 0.01
D475 UZ9.1BSA
OR RD9.1ESAB3
OR MTZJ9.1A
+27V
R217 8.2KG
R228 9.1KG
C341 16V100μ
R343 1/2R1
R342 5.6K
R344 3.9K
Q340 2SA933S
C310 35V1000μ
C447 250V22μ
ABL
AFC-1
+125V
Q461 2SA933S
R480 560
R464 1K
D464 MTJ2.2A or MTZJ2.2A
Q460 2SD2493.P
R465 4.7K
C466 0.47μ
R466 33K
R467 10K
R461 39K
R463 2R6.8
R476 18K
C477 0.039
R477 180K
C478 0.1
L461 TLN3367D or TLN3197D
D467 1S1887A
D468 UZ12BSA
C327 16V470μ SN:24617787E
L302 PL-100
C318 16V100μ
R316 150K:25*
R314 1.0M
R315 820K
D306 1SS133
R362 220K
C316 OPEN
C326 2200P
R331 100K
Q302 TA8859CP
AGC
RAMP
T.C
Vin
GND
SCL
SDA
EHT
EW
Vcc
EW FB
GND
V.FB
V.D
C319 1000
R330 1K NEAR AT # PIN
Vin
HORIZONTAL
H.DRIVE
R416 5W1.5K
Q402 2SC1569(FA-5)
R411 560
R413 150
C413 500VB820
C417 500VB390
C416 OPEN
T401 TLNP083
C446 400V0.039μF
C442 315V0.3
L442 TLN3384D or TLN3063
L441 TLN2115G (23233072)
R441 1FR1K
D461 ERC20-06 RADIATER
L463 TEM2011
OR TEM2011*
P401 5mm6P
M401 5mm6P
HOR.COIL
VERT.COIL
L462 TDY629KS 23231197


+5V-2
C108
RET5U
C103
16V220μ
16V/220μF
280Vp-p(H)
29
120Vp-p(H)
13
27Vp-p(H)
3
150Vp-p(H)
17
180V
D441
UZ9.1BSC
C441
M100V4700
R447
1R4.7K
FB7
T461
RA TPB4132DD
RB TPB4132DH
+12V
OR RD9.1ESAB3
OR MTZJ9.1C
D408
3JH41 orRU4Z
R448
1R0.47
HEATER
C443
25V1000μ
R475
1/2P180K
C475
630V 0.01
D475
UZ9.1BSA
RD9.1ESAB3
MTZJ9.1A
+27V
C304
500VB470
R328
2R3.3
LOW +B
D308
BYD33J
C310
35V1000μ
MAIN +B
C341
16V100μ
Q340
2SA933S
C448
160V33μ
C447
250V22μ
D406
BYD33J
TO CRT
(ANODE)
P405
6P
HEATER
HEATER
GND
+12V
+180V
180V
TO CRT-D BOARD
M901
6P-6P
GJ05
C210
M 0.1
R430
10K
C445
200V0.056
+125V
1000Vp-p(H)
R416
5W1.5K
G402
HORIZONTAL
Q404
2SD2253FA
C440
1.5KV7000P
Q402
2SC1569(FA-5)
T401
TLN1083
C444
1.8KV5600pF
R411
560
R413
150
R415
1R2.7K
C416
OPEN
C413
500VB820
C417
500VB390
R429
1/2R56
G406
115
10
82Vp-p(H)
150V
1H
5V
-10V
1H
R441
1FR1K
L441
2115G
(33072)